GREATER SUTTLE LAKE VEGETATION MANAGEMENT PROJECT

BIOLOGICAL EVALUATION
And
WILDLIFE REPORT

USDA Forest Service
Deschutes National Forest
Sisters Ranger District

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EXECUTIVE SUMMARY OF EFFECTS

The following table summarizes the species analyzed within this Biological Evaluation and Wildlife Report. It addresses the effects the actions associated with the Greater Suttle Lake Vegetation Management Project would have on Threatened (T), Endangered (E), Proposed (P), Candidate (C), and Sensitive species (S), plus Management Indicator Species (MIS), Survey and Manage Species (S&M), Birds of Conservation Concern (BCC), and Landbird Focal Species that may occur within the project area.

Summary of All Species Analyzed, Status, and the Effects Associated with the Alternatives and the Rationale for the Effects.

Species	Status	Proposed Action Effect/Impact	Rationale
Threatened, Endangered, and Proposed			
Oregon spotted frog *Rana pretiosa*	T	NE	Habitat for OSF does not occur within any of the lakes in the project area.
Oregon spotted frog critical habitat		NE	The project does not occur within OSF Critical Habitat.
Northern spotted owl ***Strix occidentalis caurina***	**T, MIS**	**NLAA, SNI**	**There are no proposed treatments within suitable NRF habitat; the project would degrade/eliminate dispersal habitat on 41 of the 47 acres that occurs within the project area.**
Northern spotted owl 2012 designated critical habitat		**NE**	**245 of the 249 acres of the project area occur within mapped NSO Critical Habitat. Forest Service Roads and the developed recreation sites do not function as habitat and do not contribute to the Critical Habitat Unit. The project area does not provide ideal critical habitat due to the existing high disturbance levels and developed areas including roads and campgrounds.**
Gray wolf *Canis lupus*	T	NE	The project area does not meet the definition of occupied habitat. The project area is surrounded by roads (one being a major highway) and recreational facilities, as well as continuous recreational use, and would not support a den or rendezvous site.
Pacific fisher *Pekania pennanti*	P	NE	Approximately 1 acre of suitable habitat is mapped in the project area. This one acre is made up of 6 separate 0.1 to 0.2 acre patches of habitat. Considering the small size of the habitat fragments and that this area is surrounded by roads, one being a major highway, trails, and campgrounds, as well as continuous year round recreational use, it is highly unlikely that a fisher could utilize the available habitat.

Species	Status	Proposed Action Effect/Impact	Rationale
North American wolverine *Gulo gulo*	P, MIS	NE, NI	There is no denning habitat within or adjacent to the project area. The project would not impede dispersal.
Candidate and Sensitive			
Northern bald eagle *Haliaeetus leucocephalus*	**S, MIS, BCC**	**MIIH, SNI**	**Loss of nesting and roosting habitat; potential disturbance or loss of individuals during the nesting season if seasonal restrictions are not adhered to.**
Bufflehead *Bucephala albeola*	**S, MIS**	**MIIH**	**Loss of nesting habitat; potential disturbance or loss of individuals during the nesting season.**
Harlequin duck *Histrionicus*	S	NI	Nesting habitat specific to this species does not occur within the project area.
Horned grebe *Podiceps auritus*	S	NI	Nesting habitat specific to this species does not occur within the project area.
Tule goose *Anser albifrons elgasi*	S	NI	Nesting habitat specific to this species does not occur within the project area.
Yellow rail *Coturnicops noveboracensis*	S, BCC	NI, =	Nesting habitat specific to this species does not occur within the project area.
Northern waterthrush *Parkesia noveboracensis*	S	NI	Nesting habitat specific to this species does not occur within the project area.
Tri-colored blackbird *Agelaius tricolor*	S	NI	Nesting habitat specific to this species does not occur within the project area.
Greater sage grouse *Centrocercus urophasianus*	C, BCC	NI, =	Sagebrush habitat does not occur within the project area.
Lewis's woodpecker *Melanerpes lewis*	**S, MIS, BCC, CEFS**	**MIIH, SNI, =**	**Potential disturbance during the nesting season from logging and fuels activities.**
White-headed woodpecker *Picoides albolarvatus*	**S, MIS, BCC, CEFS**	**MIIH, SNI, -**	**Potential loss of nesting habitat; potential disturbance or loss of individuals during the nesting season.**
Fringed myotis *Myotis thysanodes*	**S**	**MIIH**	**Potential disturbance or loss of individuals from impacts to roost tree removal, pre-commercial thinning, and fuels activities.**
Pallid bat *Antrozous pallidus*	**S**	**MIIH**	**Potential disturbance or loss of individuals from impacts to roost tree removal, pre-commercial thinning, and fuels activities.**
Spotted bat *Euderma maculatum*	S	NI	Rocky canyons or outcrops do not occur within the project area.
Townsend's big-eared bat *Corynorhinus townsendii*	**S, MIS**	**MIIH, SNI**	**Potential disturbance or loss of individuals from impacts to roost tree removal, pre-commercial thinning, and fuels activities.**
Sierra Nevada red fox *Vulpes necator*	S	NI	The project area does not provide adequate habitat due to the amount of human disturbance that occurs in the area year-round.
Columbia spotted frog *Rana luteiventris*	S	NI	Riparian habitat for this species occurs further east of the project area.

Species	Status	Proposed Action Effect/Impact	Rationale
Crater Lake tightcoil ***Pristiloma crateris***	**S**	**MIIH**	**Approximately 1.6 acres of riparian/wetland habitat could be impacted; project activities and heavy machinery could crush mollusk species and alter habitat microclimate. Trees may be cut and left, which could crush mollusks but could also provide habitat.**
Shiny tightcoil ***Pristiloma wascoense***	**S**	**MIIH**	**Approximately 1.6 acres of riparian/wetland habitat could be impacted; project activities and heavy machinery could crush mollusk species and alter habitat microclimate. Trees may be cut and left, which could crush mollusks but could also provide habitat.**
Dalles mountain snail *(Oreohelix variablis)* (S2 Imperiled)	S	NI	Riparian habitat specific to this species needs does not occur within the project area.
Dalles Hesperian ***(Vespericola Columbiana depressus)*** **(S2 Imperiled)**	**S**	**MIIH**	**Approximately 1.6 acres of riparian/wetland habitat could be impacted; project activities and heavy machinery could crush mollusk species and alter habitat microclimate. Trees may be cut and left, which could crush mollusks but could also provide habitat.**
Silver-bordered fritillary *Boloria selene atrocostalis*	S	NI	Meadow habitat does not occur within the project area.
Western bumble bee ***Bombus occidentalis***	**S**	**MIIH**	**Project activities may crush nests and overwintering queens; short-term reduction of foraging habitat.**
Morrison's bumble bee	**S**	**MIIH**	**Project activities may crush nests and overwintering queens; short-term reduction of foraging habitat.**
Suckley's Cuckoo bumble bee	**S**	**MIIH**	**Project activities may crush nests and overwintering queens; short-term reduction of foraging habitat.**
Management Indicator Species			
Northern spotted owl ***Strix occidentalis caurina***	**MIS, T**	**SNI, MIIH**	**There are no proposed treatments within suitable NRF habitat; the project would degrade/eliminate dispersal habitat on 41 of the 47 acres that occurs within the project area.**
Northern bald eagle ***Haliaeetus leucocephalus***	**MIS, S, BCC**	**SNI, MIIH, -**	**Loss of nesting and roosting habitat; potential disturbance or loss of individuals during the nesting season.**
American peregrine falcon Falco peregrinus	MIS, S, BCC	NI, =	There is no riparian or cliff habitat within or adjacent to the project area.
Northern goshawk ***Accipiter gentiles***	**MIS**	**SNI**	**Suitable habitat would be removed; Surveys were not conducted, but there are no known historical nests within**

Species	Status	Proposed Action Effect/Impact	Rationale
			the project area. It is possible for a pair to occur, in that instance, there could be potential disturbance or loss of individuals during the nesting season.
Cooper's hawk *Accipiter cooperi*	MIS	NI	Nesting habitat specific to this species does not occur within the project area.
Sharp-shinned hawk *Accipiter striatus*	MIS	NI	Nesting habitat specific to this species does not occur within the project area.
Great gray owl ***Strix nebulosa***	**MIS, S&M**	**SNI**	**Suitable nesting habitat would be removed; potential disturbance or loss of individuals during the nesting season.**
Great blue heron ***Ardea herodias***	**MIS**	**SNI**	**Suitable nesting habitat would be removed; potential disturbance or loss of individuals during the nesting season.**
Golden eagle *Aquila chrysaetos*	MIS, BCC	NI, =	There are no large open areas with cliffs/outcrops within or adjacent to the project area.
Waterfowl	**MIS**	**SNI**	**Suitable nesting habitat would be disturbed or removed; potential disturbance or loss of individuals during the nesting season.**
Lewis's woodpecker ***Melanerpes lewis***	**MIS, S, BCC, CEFS**	**SNI, MIIH, =**	**Potential disturbance during the nesting season from logging and fuels activities.**
White-headed woodpecker ***Picoides albolarvatus***	**MIS, S, BCC, CEFS**	**SNI, MIIH, -**	**Potential loss of nesting habitat; potential disturbance or loss of individuals during the nesting season.**
Red-naped sapsucker ***Sphyrapicus nuchalis***	**MIS**	**SNI**	**Potential loss of nesting habitat; potential disturbance or loss of individuals during the nesting season.**
Red-breasted sapsucker ***Sphyrapicus ruber***	**MIS**	**SNI**	**Potential loss of nesting habitat; potential disturbance or loss of individuals during the nesting season from logging and fuels activities.**
Downy woodpecker ***Picoides pubescens***	**MIS**	**SNI**	**Potential loss of nesting habitat; potential disturbance or loss of individuals during the nesting season from logging and fuels activities.**
Black-backed woodpecker ***Picoides arcticus***	**MIS, CEFS**	**SNI, -**	**Loss of nesting and foraging habitat; potential disturbance or loss of individuals during the nesting season from logging and fuels activities.**
Three-toed woodpecker ***Picoides dorsalis***	**MIS**	**SNI**	**Loss of nesting and foraging habitat; potential disturbance or loss of individuals during the nesting season from logging and fuels activities.**
Hairy woodpecker ***Picoides villosus***	**MIS**	**SNI**	**Loss of nesting and foraging habitat; potential disturbance or loss of**

Species	Status	Proposed Action Effect/Impact	Rationale
			individuals during the nesting season from logging and fuels activities.
Northern flicker ***Colaptes auratus***	**MIS**	**SNI**	**Loss of nesting and foraging habitat; potential disturbance or loss of individuals during the nesting season from logging and fuels activities.**
Pileated woodpecker ***Dryocopus pileatus***	**MIS**	**SNI**	**Loss of nesting and foraging habitat; potential disturbance or loss of individuals during the nesting season from logging and fuels activities.**
Williamson's sapsucker ***Sphyrapicus thyroideus***	**MIS**	**SNI**	**Loss of nesting and foraging habitat; potential disturbance or loss of individuals during the nesting season from logging and fuels activities.**
Red-tailed hawk ***Buteo jamaicensis***	**MIS**	**SNI**	**Nest habitat loss and degradation and potential disturbance during the nesting season.**
Osprey ***Pandion haliaetus***	**MIS**	**SNI**	**Loss of nesting habitat and potential disturbance during the nesting season.**
North American wolverine *Gulo*	MIS, P	NI	Suitable denning habitat does not occur within or adjacent to the project area.
American marten *Martes americana*	MIS	NI	Suitable denning habitat does not occur within or adjacent to the project area due to the high amount of recreational use.
Elk ***Cervus elephas***	**MIS**	**NI**	**No Key Elk Habitat occurs within the project area, only summer habitat. Potential disturbance and displacement would be short-term during project activities.**
Mule deer ***Odocoileus hemionus***	**MIS**	**NI**	**The project occurs within deer summer range. Potential disturbance and displacement would be short-term during project activities.**
Townsend's big-eared bat ***Corynorhinus townsendii***	**MIS, S**	**SNI, MIIH**	**Potential disturbance or loss of individuals from impacts to roost trees from logging.**
Snag and down wood habitat			**Loss of current and future snags and future down wood.**
Survey and Manage Species			
Great gray owl	**S&M, MIS**	**SNI**	**Suitable nesting habitat would be removed; potential disturbance or loss of individuals during the nesting season.**
Crater Lake tightcoil	**S&M, S**	**MIIH**	**Approximately 1.6 acres of riparian/wetland habitat could be impacted; project activities and heavy machinery could crush mollusk species and alter habitat microclimate. Trees may be cut and left, which could crush mollusks but would also provide habitat.**

Species	Status	Proposed Action Effect/Impact	Rationale
Evening field slug	**S&M**		**Approximately 1.6 acres of riparian/wetland habitat could be impacted; project activities and heavy machinery could crush mollusk species and alter habitat microclimate. Trees may be cut and left, which could crush mollusks but would also provide habitat.**
Birds of Conservation Concern and Landbird Focal Species (Only species with habitat that would occur in the project are listed)			
Black-backed woodpecker *Picoides arcticus*	CEFS, MIS	-	**Loss of nesting and foraging habitat.**
Brown creeper *Certhia americana*	CEFS	-	**Loss of nesting and foraging habitat.**
Flammulated owl *Psiloscops flammeolus*	BCC, CEFS	-	**Loss of nesting and foraging habitat.**
Hermit thrush *Catharus guttatus*	CEFS	-	**Loss of nesting and foraging habitat.**
Lewis' woodpecker *Melanerpes lewis*	BCC, CEFS, S, MIS	=	**Habitat occurs adjacent to the project area.**
Olive-sided flycatcher *Contopus cooperi*	CEFS	+	**Increase in edge habitat adjacent to open stands with larger trees.**
White-headed woodpecker *Picoides albolarvatus*	BCC, CEFS, MIS, S	-	**Potential loss of nesting and foraging habitat. Ponderosa pine is not the target species for removal in this project.**
Williamson's sapsucker *Sphyrapicus thyroideus*	BCC, CEFS, MIS	-	**Loss of nesting and foraging habitat.**

	SPECIES STATUS: (Federal Status) T=Threatened; E=Endangered; P=Proposed Sensitive=S Management Indicator Species=MIS Birds of Conservation Concern=BCC (Landbird Status) Cascades East Slope Focal Species=CEFS
	FEDERALLY LISTED SPECIES DETERMINATIONS: NE=No effect; BE=Beneficial effect, NLAA=May affect, not likely to adversely affect; LAA=May affect, Likely to adversely affect
	SENSITIVE SPECIES DETERMINATIONS: NI=No impact; BI=Beneficial impact; MIIH=May impact individuals or habitat but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species; WIFV=Will impact individuals or habitat with a consequence that the action may contribute to a trend towards federal listing or cause a loss of viability to the population or species
	MANAGEMENT INDICATOR SPECIES DETERMINATIONS: NI=No impact to viability on the Deschutes NF IC=Improved conditions, will not contribute toward a negative trend in viability on the Deschutes NF SNI=Small negative impact, continued viability is expected on the Deschutes NF LNI=Large negative impact with viability concern on the Deschutes NF
	BIRDS OF CONSERVATION CONCERN AND LANDBIRD FOCAL SPECIES: Habitat increased (+); Habitat decreased (-); Habitat unchanged (=)

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INTRODUCTION

The purpose of this Biological Evaluation (BE) and Wildlife Report is to address the effects/impacts of the Greater Suttle Lake Vegetation Management Project on the following: ESA-listed species listed as endangered, threatened, or proposed under the Endangered Species Act (ESA), or their designated critical habitat, as well as Region 6 sensitive species (USDA Forest Service 2018), Management Indicator Species (MIS), Survey and Manage Species (S&M), Birds of Conservation Concern (BCC), Focal Landbird Species, and High Priority Shorebirds. This Biological Evaluation and Wildlife Report has been prepared in compliance with the requirements of Forest Service Manual (USDA FS 1997) FSM 2630.3., FSM 2670-2671, FSM W.O. Amendments 2600-95-7, and the Endangered Species Act (ESA) of 1973, and the Land and Resource Management Plan (Forest Plan, USDA Forest Service 1990) for the Deschutes National Forest (Forest) as amended by the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the range of the Northern Spotted Owl (Northwest Forest Plan or NWFP) [1994].

Consultation obligations with U.S. Fish and Wildlife Service have been covered through the Joint Aquatic and Terrestrial Programmatic Biological Assessment for Federal Lands within the Deschutes and John Day River Basins Administered by the Deschutes and Ochoco National Forests (USDA FS 2014). The proposed action is consistent with all applicable management direction for wildlife resources on the Deschutes National Forest as described within the Deschutes National Forest Land and Resource Plan (USDA FS 1990), as amended.

This Biological Evaluation and Wildlife Report has considered and applied the best science available, including papers, reports, literature reviews, review citations, peer reviews, science consistency reviews, and results of ground-based observations or surveys. The best available science was used to determine species or habitat presence and effects. A complete list of the science used can be found within the species discussions and in the Literature Cited section of this document. ***If the action is modified in a manner that causes effects not considered, or if new information becomes available that reveals the action may affect endangered, threatened, proposed, or sensitive species that in a manner or to an extent not previously considered, a new or revised Biological Evaluation/Wildlife Report would be required.***

PROPOSED ACTION

This project proposes to fell hazards in the form of danger trees and hazard trees to protect the public and reduce potential damage to recreation infrastructure. Trees in the general project area would be selectively harvested to improve overall forest health by reducing the extent of dwarf mistletoe and addressing susceptible host trees in areas with stem and root diseases. Reforestation, seeding, and transplanting of disease resistant trees species would be conducted to facilitate recovery in areas of tree removal. This would result in a decreased need (both short- and long-term) to address safety concerns. Felled trees associated with this project may be left on site to meet down wood needs (outside of developed recreation areas); removed as forest products to maintain safe recreational experience; or pushed over (root wads attached) to support habitat restoration activities, such as in-stream work to restore fish habitat.

The burial of powerlines within Camp Tamarack would occur prior to hazard tree removal as these lines are currently attached to trees that would be removed.

This project is expected to begin during the fall of 2019.

PURPOSE AND NEED FOR ACTION

The ***purpose*** of the project is to provide public health and safety, protect and maintain infrastructure, ensure safe public occupancy of developed recreation areas and reduce impacts of tree diseases to forests in the greater Suttle lake area.

There is a ***need*** to reduce short-term impacts from the presence of hazard trees in developed recreation areas and danger trees along Forest roads and conduct silvicultural treatments (thinning and planting) to promote forest health in the project area over the long-term. There is also a need to manage down wood in developed recreation areas and contribute forest products to local economies.

Stand treatments, including sanitation harvest, pre-commercial thinning, and pruning would provide long-term forest health by the removal of highly susceptible tree host species to insects and diseases. The removal of felled trees would ensure safe future operations in campgrounds, special use areas, as well as ensure appropriate fuel loadings in and adjacent to campgrounds, organizational camps, and along Forest roads.

PROJECT AREA LOCATION AND DESCRIPTION

The project area is located west of Sisters, Oregon, in the vicinity of Suttle Lake in T13S, R08E, sections 24, 25, and 26. The area is accessed from Highway 20 and by Forest Roads 2066 and 2070. The project area is about 3,500-4,000 feet in elevation and approximately 246 acres in size. The project area occurs within the boundaries of the B&B Fire, which burned over 90,000 acres in August 2003. Patches of forest that did not burn in the fire are being impacted by insects and diseases. See Figure 1 for a vicinity and project area map.

Forest diseases and past insect damage from western spruce budworm are prevalent in the project area and create long-term public safety and forest health concerns. Whole tree or partial tree failure is an on-going concern; for example, large Douglas-fir brooms can weigh in excess of 2,000 pounds. In addition to the readily identifiable dwarf mistletoe in Douglas-fir and white fir, there are confirmed occurrences of root and stem rots throughout the project area. Due to the interaction of these diseases (and past insect damages) hazard tree mitigation has been an ongoing safety concern for over 20 years. At least two separate tree failure events resulted in vehicle damage since 2013 and could have resulted in serious injuries or fatalities.

Due to the numerous root and stem diseases and concentration of campgrounds and recreation, the greater Suttle lake areas has served as a training location for hazard tree identification and education events. Campground and organization camp hazard tree assessments are conducted to mitigate the short-term forest health concerns. Hazard trees within the camp setting must be evaluated by the Forest Service before they can be felled and removed.

The following table describes the different land allocations that occur within the project area:

Table 1. LRMP Management Area Acres in the Project Area

Management Area	Northwest Forest Plan Allocation	Acres	Percent of Project Area
Intensive Recreation (MA-11)	Administratively Withdrawn	205	82%
	Late Successional Reserve (LSR)	15	6%
General Forest (MA-8)	Matrix	12	5%
	Late Successional Reserve (LSR)	2	1%
Bald Eagle (MA-3)	Late Successional Reserve (LSR)	15	6%
Total Planning Area Acres		**249**	**100%**
	Riparian Reserves*	88	NA

***Riparian reserve allocation of the Northwest Forest Plan overlays other NWFP management allocations and therefore these acres are not counted toward the total acres. There is one stream and one lake in the project area.**

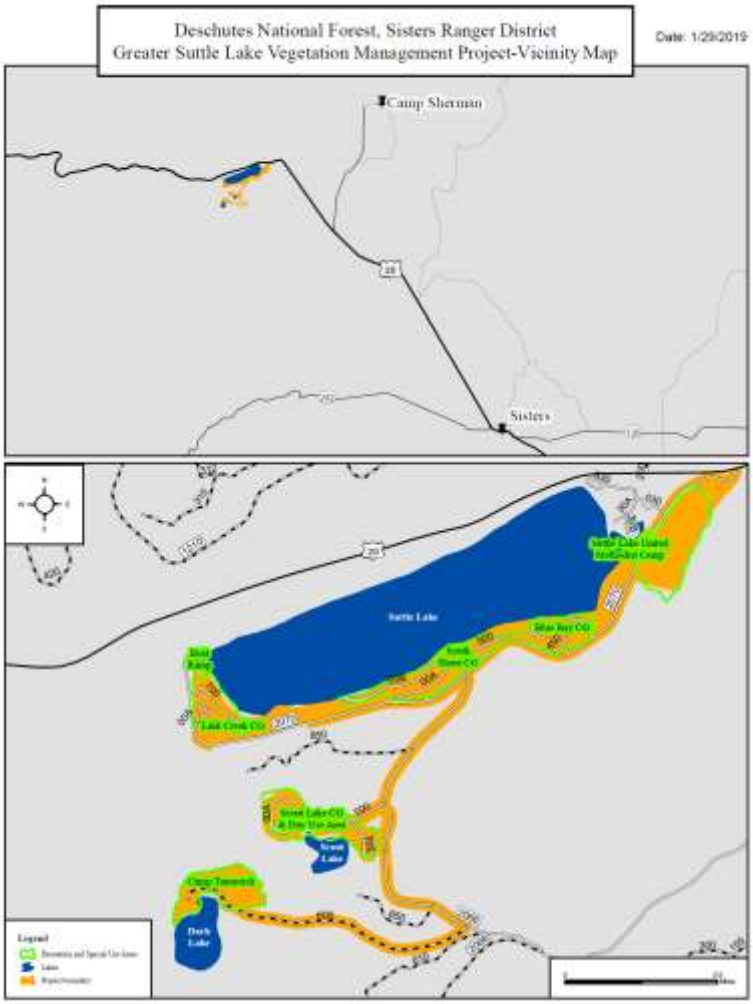

Figure 1: Vicinity and Project Area Map

PROJECT DESCRIPTION

Danger trees would be assessed along four miles of Forest Roads 2070 and 2066. Danger trees would be felled (abatement) and removed within 100 - 150 feet of the road edge. Hazard trees with a rating of seven or higher would be felled and removed within and up to 150 feet of the edge of a developed recreation site.

All trees, regardless of species and diameter class, would be evaluated for the presence of dwarf mistletoe. In general, trees that have a Hawksworth dwarf mistletoe rating (DMR) of 4 or more or have a visible infections in the top 1/3 of a living crown above would be felled and removed. Trees that rate < DMR 4, but have > 10% top kill (measure as proportion of total tree height) would also be felled. Trees with < DMR 4 that have an intact top would be evaluated for pruning based on the risk to recreation assets.

In addition, all trees would be evaluated for stem and root decay. In general white fir, Engelmann spruce and mountain hemlock would be preferentially cut due to their high susceptibility for these diseases. Ponderosa pine, healthy Douglas-fir, healthy western white pine, and western larch are preferred species. Based on level of diseases and prevalence, tree falling/removal would vary from location to location, but could approximate 50% across the project area.

Planting, transplanting and/or seeding would occur to improve long-term forest health in the project area, as well as provide future visual screening between campgrounds. To accomplish this, early seral tree species such as ponderosa pine, western white pine, western larch and Douglas-fir would be planted or transplanted. These tree species occur in the general area as well as have a lower host susceptibility to stem and root diseases in the area.

Where overstory mistletoe trees are maintained, non-host tree species would be selected in order to minimize future dwarf mistletoe infections. These trees would provide replacement trees over time and contribute to screening between camp sites in the long run. Shrub species such as green leaf manzanita, vine maple, and ocean spray would also be added as well as seeding of native grasses and forbs. This would aid in the short-term recovery and visual quality of campgrounds or special use areas.

Ground based logging equipment would be used to skid felled trees to a temporary landing location. To accommodate habitat restoration projects, tree utilization could include removal of entire tree including the root wad. Activity fuels along roadsides would be piled and treated after timber felling operations are completed. In those cases where activity fuels are located in a campground, day-use area, or camp, slash would be removed to a location where burning or other means of disposal would not impact campground esthetics or cause other forms of resource damage.

For this project proposal, activity area boundaries are considered to be the smallest identified area where the potential direct and indirect effects from different management practices could occur.

Figure 2 displays the units that make up this project.

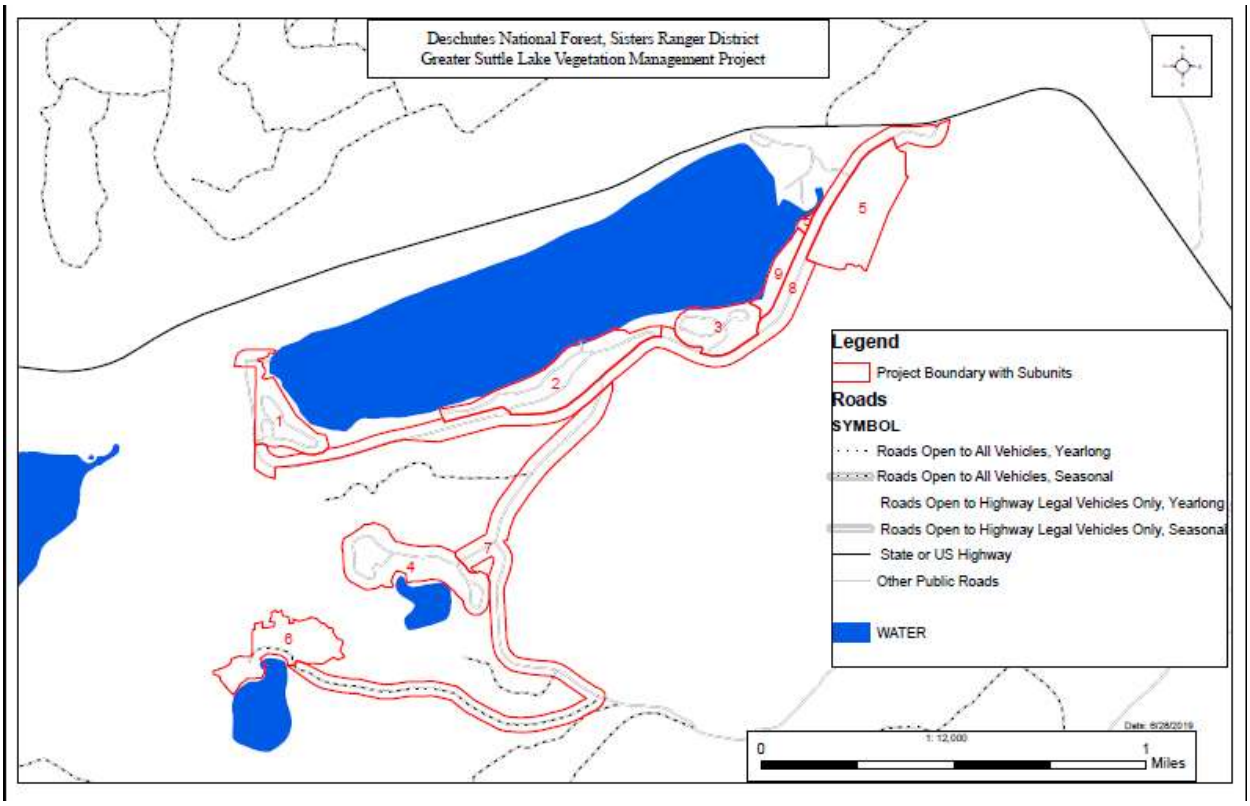

Figure 2: Vicinity and Project Area Map

WILDLIFE ANALYSIS METHODS

The species analyzed in this report include those with known presence and/or potential habitat on the Forest. If no surveys have been conducted for the species or there are no detections or no known occurrences, occupancy in the project area is assumed based on potential habitat.

A May effect/impact determination for species is assessed at the individual level within the project area. Direct effects/impacts could occur if the project occurs during the reproductive period, including loss of habitat, direct mortality of offspring (eggs, nestlings, pups) in nests or roost sites of trees felled, adult abandonment of nests with eggs or young due to felling and other operational disturbance, and minor displacement during foraging due to felling and other operational disturbance.

Direct effects/impacts to mollusk species may include crushing of individuals due to felling and trampling. These are anticipated to be minor in scope due to the narrow linear habitat where they would occur.

A determination of whether the "May Impact" would result in a "trend towards federal listing" for sensitive species is made at the population level based on forest-wide information for these species. A determination of positive, negative, or neutral trend towards viability for Management Indicator Species is also made at the population level based on draft forest-wide habitat assessments including habitat modeling that was completed in 2012.

Impacts to landbird species are evaluated in terms of the Biological Objectives for the Conservation Strategy for Landbirds on the Eastslope of the Cascades. In general, these objectives are at the landscape scale and species' population level.

The Council on Environmental Quality (40 CFR 1502.2) directs that impacts be discussed in proportion to their significance. Some wildlife species require a detailed analysis and discussion to determine effects. Others may not be impacted, impacted at a level that is inconsequential, or impacts are adequately avoided or mitigated through the design of the project. Generally, these elements do not require a detailed discussion and analysis.

ANTICIPATED EFFECTS FROM THE PROPOSED ACTION

Hazard tree and danger tree felling within mixed conifer stands is the primary treatment type that would occur. The project area is approximately 249 acres and is confined to a narrow, linear route alongside well-travelled roads and around recreational facilities. The habitat within the project area has been impacted by previous fire, insects and diseases. Because of this, the habitat quality is likely to be lower for some species than in other larger contiguous habitat blocks. For these species, the actual habitat affected for any one territory or home range of an individual may be a small percentage of that territory/home range. However the project area is suitable for species with smaller territories that are dependent upon dead and/or diseased trees, including many cavity nesters. The targeted removal of these trees would reduce habitat for these species.

DURATION AND DEGREE OF IMPACTS (Short-Term vs. Long Term)

Effects of the treatments associated with this project to habitat are assessed on a short-term and long-term basis. From the initial removal of trees and logs, the effects from this reduction occur roughly over a 20 year period. Once the dead and diseased trees have been removed, there would be a period of time that these areas would have a minimal number of snags and trees available for future snags. Therefore, when referencing short-term and long-term impacts to wildlife habitat from this Forest Service action, short-term impacts to dead and diseased tree habitat are <20 years and long-term impacts are those that would occur over 20 years.

CUMULATIVE EFFECTS

Methodology for Cumulative Effects including Bounding

Cumulative effects are those which result from the incremental, combined influences of past, present and reasonably foreseeable future actions. For past actions that have been completed, the resulting effects of these past actions are indistinguishable from each other and combined and have been considered as part of the existing condition and the suitability or quality of the habitat.

The project area (249 acres) lies within the 12th Field Lower Lake Creek Subwatershed (7,123 acres) and the 10th Field Upper Metolius River Watershed (140,909 acres). The appropriate scale or geographic bounds for wildlife effects analysis varies on a species-by-species basis and may include review at multiple scales. For the purposes of this project, the scale was assessed at the surrounding project level and/or subwatershed scale since a majority of the project occurs within Administratively Withdrawn lands (see Table 1) and is specific to danger/hazard tree removal. Direct, indirect, and cumulative effects were considered individually for each wildlife species and associated habitat to arrive at a final determination of effects. For those species unaffected by the proposal, additional analysis of direct, indirect or cumulative effects was not necessary. The species' status, habitat conditions and population trends across the appropriate scales were reviewed to consider the potential effects from the project in concert with larger scale trends as well as national forest-level and regional-level goals.

Below is a list of past, ongoing and reasonably foreseeable future actions. Past actions are incorporated into the existing condition, and present and future actions that are identified, quantify potential cumulative effect in association with those actions proposed under the Greater Suttle Lake Vegetation Management project area for Categorical Exclusion.

Past

- Suttle Lake Methodist Camp – est. 1925
- Camp Tamarack – est. 1935
- Suttle Lake campgrounds – est. early 1920s; upgrades in the 1960s
- Trail construction
- Hazard tree abatement in campgrounds
- Danger tree abatement along roads
- 2003 B&B fire – 90,962 acres
- Fish habitat improvement, mouth of Suttle lake

Present

- Danger tree abatement along HWY 20
- Hazard tree abatement in campgrounds
- Danger tree abatement along FS roads
- Trail maintenance

Future

- Danger tree abatement along HWY 20
- Hazard tree abatement in campgrounds (as needed)
- Danger tree abatement along roads (as needed)

The 2003 B&B Fire has had the largest impact on the project area and surrounding landscape.

Where the project would result in an incremental effect or impact when added to any of these projects or activities, it is discussed in the cumulative effects analysis for that species or habitat.

TYPE OF ENVIRONMENTAL ANALYSIS

The environmental effects of the project would be documented using categorical exclusion 36 CFR 220.6(e) (14):

Commercial and non-commercial sanitation harvest to control insects or disease not to exceed 250 acres, requiring no more than ½ mile of temporary road construction, including the removal of infested/infected trees and adjacent live infested/uninfected trees as determined necessary to control the spread of insects or disease. The proposed action may include incidental removal of live or dead trees for landings, skid trails, and road clearing.

WILDLIFE PROJECT DESIGN CRITERIA

RAPTORS and GREAT BLUE HERON- ***To prevent disturbance of and/or loss of nesting raptors and great blue herons and their habitat during the breeding season***.

●No disturbing activities (dead and diseased tree removal, pre-commercial thinning, piling, or burning) within ¼ mile and/or line of sight from any active nest of the following species during the listed periods **if they are discovered within or adjacent to the project area.**

Northern bald eagle	January 1 – August 31 (M3-15, M3-33) (Units 2, 3, 8, and 9)
Northern goshawk	March 1 – August 31 (WL-11)
Red-tailed hawk	March 1 – August 31 (WL-3)
Great gray owl	March 1 – June 30 (WL-33)
Osprey	April 1 – August 31 (WL-3)
Great blue heron	March 1 – August 31 (WL-35)

Within this project, for the above listed species, there is currently only one known active northern bald eagle nest.

Locating temporary roads within nest stands would be avoided.

●The project wildlife biologist or Sisters District wildlife biologist would be contacted immediately if new, active raptor nests are discovered or raptors are sighted exhibiting territorial behavior during layout, implementation, or post-sale activities. All activities would cease for a radius of at least 375 feet around the nest site until a biologist evaluates the nest site. Appropriate restrictions would be applied before activities are permitted to continue. Core areas would be established around the new site if it were located. Core areas may be located both inside and outside of treatment unit boundaries.

WATERFOWL AND LANDBIRDS - ***To prevent disturbance of and/or loss of nesting birds during the breeding season***.

●To minimize disturbance and direct impacts to nesting waterfowl and landbirds (which includes Neotropical Migratory Bird species and woodpeckers), **limit the amount of tree removal, pre-commercial thinning, piling and burning to the extent feasible during the time from April 15 to July 15.**

BATS - ***To prevent disturbance of and/or loss of roosting bats***

●To minimize disturbance and direct impacts to bat species that could be roosting in large trees within the project area, **limit the amount of tree removal, pre-commercial thinning, piling and burning to the extent feasible during the time from April 15 to October 1.**

CRATER LAKE TIGHTCOIL, SHINY TIGHTCOIL, DALLES HESPERIAN, AND EVENING FIELD SLUG - ***To prevent disturbance of and potential loss of individuals***

●To minimize disturbance of habitat and direct loss of mollusk species, no equipment would be allowed directly within suitable wetland habitat. If this cannot be avoided, conduct the activity when the ground is frozen.

SNAGS/DOWN WOOD

●The Deschutes National Forest LRMP states that *snags determined to be safety hazards in areas of concentrated public use should be* ***topped*** (a minimum of 15" dbh, but prefer 20"dbh or larger) ***or removed*** (M11-31). This could also pertain to diseased trees that are considered a danger/hazard tree. Potential topping of trees would be dependent on several factors including where the trees are located, the size, and the condition of the tree.

●Nest boxes should be placed in campgrounds and other places of concentrated public use if all dead and diseased trees are removed, to allow observation opportunities of cavity-nesting wildlife (M11-31). The number and placement of nest boxes would be dependent upon post-treatment conditions.

●Within campgrounds and organizational camps, where appropriate, leave felled hazard trees (preferably >20" dbh) if they can be used to segregate campsites, protect riparian habitat resources, prevent soil erosion, or deter user created trails.

●Within 100 feet of lakeshores (where appropriate) and within late-successional reserves, hazard/danger trees ≥20 inches dbh should be felled but left in place if current fuel loadings are not in extreme excess and pose a fuel hazard.

●Within roadside units, where appropriate, fell and leave danger trees if they are cull trees.

●All down woody material that is currently on the ground within the project area should be left in place if it does not impede the function of the area such as in the campgrounds and organizational camps. The preferable size class to retain would be downed wood >20" dbh.

BIOLOGICAL EVALUATION

The biological evaluation (BE) analyzes the effects to federally threatened, endangered, proposed, and candidate species and impacts to Region 6 Sensitive Species associated with the Greater Suttle Lake Vegetation Management project area on the Deschutes National Forest.

SPECIES INFORMATION & EFFECTS ANALYSIS

Analysis Summary

Table 2 is a summary of the findings of this BE on the effects/impacts of the proposed action:

Table 2. Summary of Effects/Impacts to Species Addressed in the BE from the Proposed Action.

Species	Proposed Action
Proposed (P), Threatened (T), Endangered (E) Species	
Northern spotted owl (T)	Not Likely to Adversely Affect
Northern spotted owl Critical Habitat	No Effect
Gray wolf (E)	No Effect
Oregon spotted frog (T)	No Effect
Oregon spotted frog Critical Habitat	No Effect
North American Wolverine (P)	No Effect
Fisher (P)	No Effect
R6 Sensitive Species	
Northern bald eagle	MIIH
Bufflehead	MIIH
Harlequin duck	No Impact
Horned grebe	No Impact
Tule goose	No Impact
Yellow rail	No Impact
Northern waterthrush	No Impact
Tricolored blackbird	No Impact
Greater (Western) sage grouse	No Impact
Lewis' woodpecker	MIIH
White-headed woodpecker	MIIH
Townsend's big-eared bat	MIIH
Pallid bat	MIIH
Spotted bat	No Impact
Fringed myotis	MIIH
Sierra Nevada Red Fox	No Impact
Columbia spotted frog	No Impact
Crater Lake tightcoil	MIIH
Shiny tightcoil	MIIH
Dalles mountain snail	No Impact
Dalles Hesperian	MIIH
Silver-bordered fritillary	No Impact
Western bumble bee	MIIH
Morrison's bumble bee	MIIH
Suckley's cuckoo bumble bee	MIIH

MIIH = May impact individuals or habitat, but will not likely contribute to a trend toward federal listing or loss of viability to the population or species.

Federally Listed and Proposed Species

Table 3 lists Federally Listed and Proposed species, their habitat needs, presence/habitat within the project area, and the project's effects to the species.

The Deschutes and Ochoco National Forests completed a Joint Terrestrial and Aquatic Programmatic Biological Assessment (BA, USDA and USDI 2014) in May 2014 for Federal Lands within the Deschutes and John Day River Basin's administered by the Deschutes and Ochoco National Forests. The BA established project design criteria (PDC) to streamline consultation with the U.S. Fish and Wildlife Service (FWS). Project design criteria focus on habitat alteration and disturbance effects. The northern spotted owl and Oregon spotted frog were included in the BA.

Table 3: Federally Listed and Proposed Species Occurring on the Forest and Effects from the Proposed Project.

Species and Critical Habitat	Status & NatureServe Ranking	Basic Habitat Description	Habitat/ Presence in Project Area	Determination of Effects
FEDERALLY LISTED AMPHIBIANS				
Oregon spotted frog *Rana pretiosa*	Federal Threatened *S1 Critically Imperiled	Highly aquatic. Breeding - requires emergent wetlands - sedge fens, riverine over-bank pools beaver ponds. Post breeding - permanent water within wetland, riverine, and lacustrine habitats. Overwinter - deep ponds, or well oxygenated springs.	No habitat within project boundary	No Effect
Oregon spotted frog Critical Habitat			No proposed critical habitat within project boundary	No Effect
FEDERALLY LISTED BIRDS				
Northern spotted owl *Strix occidentalis caurina*	**Federal Threatened, MIS *S2 Vulnerable**	**Nesting, roosting, foraging (NRF) habitat consist of late and old structure, multi-story stands with Douglas fir and true firs.**	**Yes**	**●NLAA**
Northern spotted owl Critical Habitat			**Yes**	**No Effect**
FEDERALLY LISTED MAMMALS				
Gray wolf *Canis lupis*	Federal Endangered *S1S2 Critically Imperiled/Imperiled	Habitat generalist dependent on remote areas (low human densities/few roads) with sufficient big game species available year round.	No habitat within project boundary	No Effect
Pacific fisher *Pekania pennanti*	Federal Proposed, Regional Forester Sensitive, MIS *S1S2 Critically Imperiled/Imperiled	Undisturbed tracts of mixed conifer & riparian habitat with complex structure.	No habitat within project boundary	No Effect
North American Wolverine *Gulo gulo*	Federal Proposed, Regional Forester Sensitive, MIS	Wide variety of habitats, limiting factor is breeding habitat in high-elevation,	No habitat within project boundary	No Effect

Species and Critical Habitat	Status & NatureServe Ranking	Basic Habitat Description	Habitat/ Presence in Project Area	Determination of Effects
	*S1 Critically Imperiled	alpine habitats containing sufficient snow depth during the spring denning period.		

***Oregon Sensitive Species and Forest Service Species of Conservation Concern determined from the NatureServe database for Oregon (2018, S1 = critically imperiled, S2 = Imperiled, S3 = vulnerable).**
●NLAA = May Effect, But Not Likely to Adversely Affect - USFWS Concurs with the NLAA and that it would be covered under the Programmatic BA (2014).

OREGON SPOTTED FROG, *Rana pretiosa*
FS THREATENED

Habitat Needs and Existing Condition

For a detailed life history, habitat needs and threats refer to the Final Rule (USDI 2014). Watson *et al.* (2003) summarized the conditions required for completion of the Oregon spotted frog life cycle as shallow water areas for egg and tadpole survival, perennially deep, moderately vegetated pools for adult and juvenile survival in the dry season, and perennial water for protecting all age classes during cold wet weather.

The Greater Suttle Lake Vegetation Management Project area is not suitable Oregon spotted frog habitat. The project does not occur within any designated critical habitat. Consequently, this project would have **no effect** to Oregon spotted frogs or their habitats. The project would also have **no effect** to Oregon spotted frog critical habitat. No further analysis and discussion is warranted.

NORTHERN SPOTTED OWL, *Strix occidentalis caurina*
FS THREATENED, MIS

Measures: Effects to nesting, roosting, and foraging habitat, effects to dispersal habitat and connectivity, effects to designated critical habitat, and disturbance effects.

Habitat Needs and Existing Condition

A detailed account of the taxonomy, ecology, and reproductive characteristics of the northern spotted owl (*Strix occidentalis caurina*) is found in: **U.S.** Fish and Wildlife Service (USFWS) Status Reviews (USDI 1987, 1990a, and 2004); the Status Review Supplement (USDI 1989); the Interagency Scientific Committee (ISC) Report (Thomas et al. 1990); and the Final Rule designating the spotted owl as a threatened species (USDI 1990b).

The northern spotted owl (*Strix occidentalis*) is federally listed as threatened. The Revised Recovery Plan for the Northern Spotted Owl (USDI 2011a) also provides biological information and the framework for the steps needed to restore viable spotted owl populations. The Final Recovery Plan (USDI 2011a) was released on June 28, 2011 and provides updated information on strategies and threats. The Final Critical Habitat Rule was revised and became effective January 3, 2013 (USDI 2012) and mirrors the 2011 Recovery Plan objectives.

The Northern spotted owl inhabits mature to old-growth mixed coniferous habitats. Functional nesting, roosting, and foraging (NRF) habitat for the spotted owl occurs in multi-storied canopies in mixed conifer stands and in riparian areas. Loss of large trees and fragmentation of habitat due to previous timber harvest, large-scale wildfires, and insect and disease mortality, along with competition with the barred owl (*Strix varia*) have reduced the habitat quantity and quality for the spotted owl on the Forest.

Nesting, Roosting, Foraging Habitat: Functional nesting, roosting, and foraging (NRF) habitat for the spotted owl occurs in multi-storied canopies in mixed conifer stands and in riparian areas. The canopy cover is typically greater than or equal to 40% with an overstory comprised of at least five percent of trees greater than 21" diameter-at-breast- height (dbh). Habitat that meets nesting and roosting requirements also provides foraging habitat, although a wider array of forest types are used for foraging, including more open and fragmented habitat. Areas considered NRF habitat on the Forest are also considered dispersal habitat, but are not mapped as dispersal in GIS. There is approximately 70,370 acres of NRF habitat on the Deschutes National Forest.

There is no NRF habitat that overlaps the project area or occurs within ¼ mile of the project area.

Dispersal Habitat: Dispersal habitat is important for the movement of spotted owl young away from natal areas or adults moving from one territory to another or between Critical Habitat Units. Dispersal habitat is defined in the Deschutes and Ochoco Programmatic BA (USDA 2014) as a stand of trees with a minimum of 30%-40% canopy closure regardless of plant association and a minimum average diameter of 7 inches dbh for lodgepole pine stands, and 11 inches dbh for mixed conifer.

Dispersal habitat is not abundant, covering approximately 19% (47 acres) of the project area, largely due to the 2003 B&B Fire. The largest patches occur on the south side of Suttle Lake east to the Methodist Camp. Other smaller patches occur near Scout Lake within and adjacent to Scout Lake Campground and near Dark Lake within the boundaries of Camp Tamarack (Figure 3).

Spotted owl dispersal habitat, as well as NRF habitat, can also act *de facto* as corridors or movement habitat for a variety of other wildlife species that utilize mature forests. This habitat is patchy and connectivity from this area to the north, south, and west, is minimal. To the east of the project area, there are larger tracts of dispersal habitat.

Table 4 shows the amount of dispersal habitat on the forest and within the project area.

Table 4. Dispersal Habitat on the Deschutes National Forest.

Scale	Acres of mapped Habitat	Percent of Total Acres
Dispersal Habitat on the Deschutes National Forest	295,110	100%
Dispersal Habitat within the Project Area	47	Less than 1%

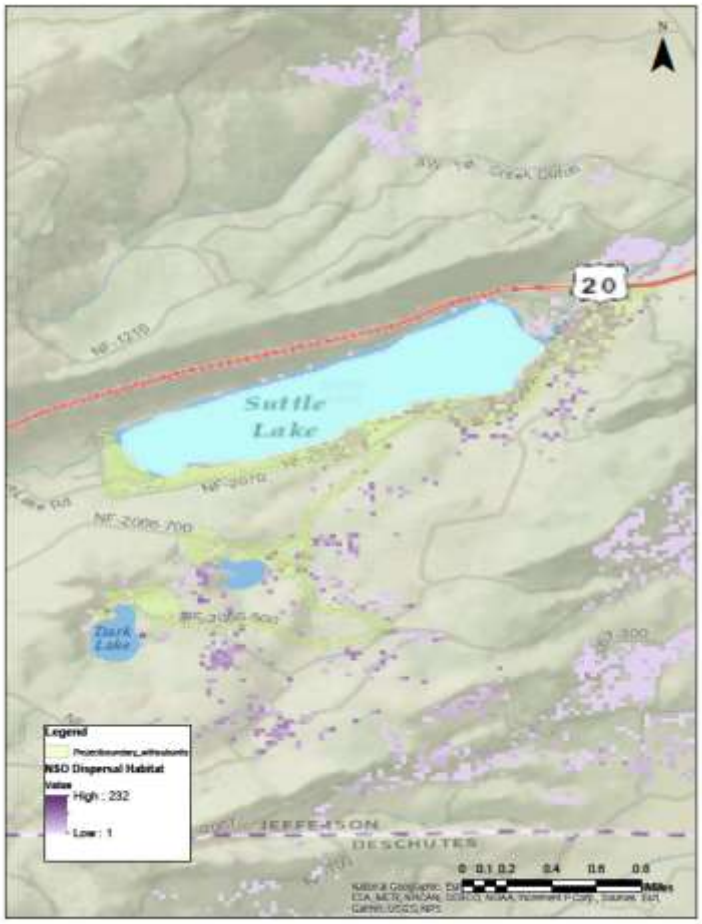

Figure 3. Spotted Owl Dispersal Habitat within the Project Area.

Northern Spotted Owl Critical Habitat: Approximately 245 acres of the 249 acre project area are within designated critical habitat in Critical Habitat Unit (CHU) ECN 8 (Figure 4). However, there is a large portion of that acreage that does not function as critical habitat. The Designation of Revised Critical Habitat for the Northern Spotted Owl: Final Rule (USDI 2012) states in regard to recreational areas (Final CHU pg., 71918) that determining critical habitat boundaries, every effort was made to avoid including these areas because they lack physical or biological features for the northern spotted owl. Due to the limitations of mapping at such fine scales, however, they were often not able to segregate these areas from areas shown as critical habitat on critical habitat maps suitable in scale for publication within the Code of Federal Regulations. Also, on page 72052 (B) (3) (i) (B) *Critical habitat does not include: (i) manmade structures (such as buildings, aqueducts, runways, roads, other paved areas, or surface mine sites) and the land on which they are located."* Table 5 shows the amount of Critical Habitat on the forest and within the project area.

Table 5. Critical Habitat on the Deschutes National Forest.

Scale	Acres of mapped Habitat	Percent of Total Acres
CHU 7 on the Deschutes National Forest	250,056	18.5%
Subunit ECN 8 on the Deschutes National Forest	94,622	100%
Subunit ECN 8 in the Project Area	245	Less than 1%

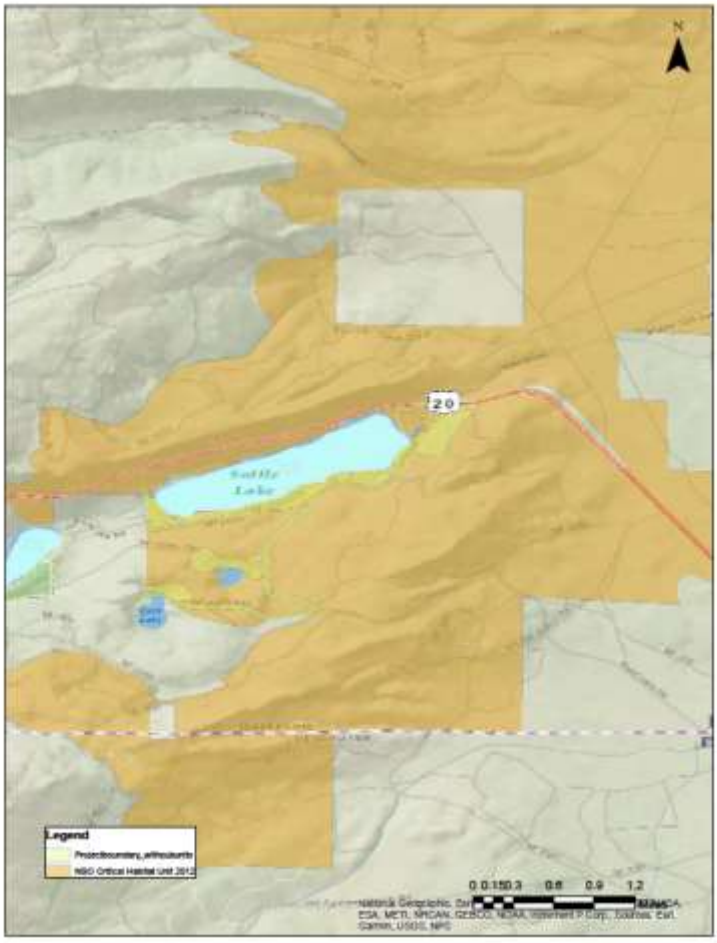

Figure 4. Spotted Owl Critical Habitat Unit.

Spotted Owl Presence in and adjacent to the Project Area

There are no potentially active spotted owl home ranges that overlap the project area. Several historic home ranges once occurred overlapping the project area, but are no longer considered viable due to habitat alterations primarily from past wildfires.

Environmental Consequences

Direct and Indirect Effects

Disturbance

The project area has not been surveyed to protocol. However, there are no known viable home ranges within ¼ mile of the project area that would be affected. In addition, the project area is adjacent to roads and developed recreational facilities, with use and disturbance occurring year round.

Nesting, Roosting, Foraging (NRF) Habitat

Suitable NRF habitat does not occur within the project area. There would be no direct impacts to NRF habitat as a result of implementation of the proposed action.

Dispersal

Within the project area, 41 acres of the 47 acres of dispersal habitat would be treated. Of the 41 acres, 6 acres of dispersal habitat would be degraded by pre-commercial thinning, which would thin smaller trees up to 8" dbh. This activity is not expected to bring the canopy within the stand below 40% as these trees are smaller and not providing the upper canopy. Hazard/danger tree removal would occur on the other 35 acres and is expected to degrade or eliminate dispersal habitat by removing enough trees to reduce the canopy to or below 40%. The dispersal habitat within and adjacent to the project area is already in a patchy condition and provides little to no connectivity to other patches of dispersal habitat north, south and west of the project area. Dispersal habitat is more abundant east of the project area, where currently connectivity occurs to the dispersal habitat that would be eliminated or degraded. The dispersal habitat within the project area has high disturbance from recreational use and is surrounded by campgrounds and roads.

Connectivity

The current connectivity of habitat surrounding Suttle Lake is minimal. The largest patch of dispersal habitat occurs on the south side of Suttle Lake within the campgrounds and the Methodist Camp. The remaining dispersal within the project area is scattered.

Critical Habitat

The habitat immediately surrounding the project area has been heavily impacted by a previous wildfire. This wildfire created a patchy landscape of large open areas with smaller patches of NRF and dispersal habitat. The function of the CHU as a whole would not be degraded with implementation of this project. Approximately 41 acres of dispersal would be degraded or eliminated, but no NRF would be removed.

Approximately 245 acres of the project area occur within designated critical habitat in Critical Habitat Unit (CHU) ECN 8 (Figure 4). Forest Service Roads and the developed recreation sites do not function as habitat and do not contribute to the Critical Habitat Unit. The project area does not provide ideal critical habitat due to the existing high disturbance levels and developed areas including roads and campgrounds.

Other aspects of the project including planting, transplanting, seeding, and boraxing, and burial of power lines at Camp Tamarack would have negligible impacts to the northern spotted owl.

Cumulative Effects

The Greater Suttle Lake Vegetation Management Project would not add incrementally to ongoing and reasonably foreseeable actions within the Suttle Lake area or the Lower Lake Creek Subwatershed for dispersal habitat loss. The proposed action would not be cumulative to other projects in the area or subwatershed. Future projects in the area may remove an occasional hazard/danger tree within the project area, but the actions from this project will have already degraded or removed any dispersal within the project area. Danger tree removal adjacent to Highway 20 would remove an occasional tree that if within dispersal should not reduce or remove dispersal acreages

Since there are no direct or indirect effects to spotted owl NRF habitat and designated critical habitat, there would be no cumulative effects to NRF habitat or designated critical habitat as a result of this project.

Project Design Criteria/Mitigation Measures

Not applicable.

Consistency

Implementation of the Greater Suttle Lake Vegetation Management Project is consistent with the Deschutes Land and Resource Management Plan as amended by the Northwest Forest Plan 1994 and the December 2012 Critical Habitat Rule. It is also consistent with recovery actions listed in the Final Recovery Plan for the spotted owl (USDI 2011a). Refer to Appendix C for the northern spotted owl Monitoring Protocol per maintaining consistency with the 2014 Programmatic BA and Appendix C for the Project Design Criteria Compliance Checklist.

Determination/Conclusion (All Action Alternatives)

No Effect would occur to northern spotted owl nesting, roosting, and foraging habitat as no treatment units occur within this habitat.

Hazard and danger tree removal would degrade or remove dispersal habitat by reducing the canopy cover to or below 40%, while pre-commercial thinning dispersal habitat (trees up to 8" dbh) would degrade this habitat, but would maintain 40% or above canopy cover.

In conclusion, the Greater Suttle Lake Vegetation Management Project ***May affect but would not likely adversely affect*** *the* ***northern spotted owl***. This project would not contribute to a downward trend of viability for the northern spotted owl at the Forest level. The northern spotted owl is considered to be "imperiled" (S2) by NatureServe (2019).

The proposed action of the Greater Suttle Lake Vegetation Management Project would have ***No Effect*** to Northern Spotted Owl Critical Habitat, as a majority of the project is within camps and campgrounds or adjacent to roads, and would not affect the current function of the CHU. The Designation of Revised Critical Habitat for the Northern Spotted Owl: Final Rule (USDI 2012) states in regard to recreational areas (Final CHU pg., 71918) that determining critical habitat boundaries, every effort was made to avoid including these areas because they lack physical or biological features for the northern spotted owl.

The Greater Suttle Lake Vegetation Management Project meets applicable NSO PDCs of the 2014 Joint Aquatic and Terrestrial Programmatic Biological Assessment (BA) and is covered by the scope of this document (see Appendix D, Wildlife Project PDC Compliance Checklist).

Informal consultation was conducted during the planning phase of the project. It was determined in a February 2019 meeting that the project is consistent with the Programmatic Biological Opinion and formal consultation is not needed.

GRAY WOLF, *Canis lupus*
FS ENDANGERED

Measure: Effects to denning habitat & rendevous sites

In 2011 the U.S. Fish and Wildlife Service reissued the final rule to designate and removed the northern Rocky Mountains Distinct Population Segment (DPS) of gray wolf from the Endangered Species List. The northern Rocky Mountains DPS includes the eastern third of Oregon and Washington (USDI 2011b). In the areas surrounding the northern Rocky Mountains DPS that don't currently have wolves, Endangered Species Act protections are still in place, including parts of Oregon and Washington. Currently, lands within the boundaries of the Deschutes National Forest are outside the DPS unit, and therefore, Endangered Species Act protection is still in place. In 2019, the U.S. Fish and Wildlife Service issued a Proposed Rule to remove the gray wolf from the Endangered Species list.

Habitat Needs and Existing Condition

A detailed account of the taxonomy, ecology, and reproductive characteristics of the gray wolf (*Canis lupus*) is found in: Fish and Wildlife Service (UFWS) Gray Wolf Biological Report (USDI 2018).

Being highly social, gray wolves live in packs. Packs form when a pair bond develops between two mature wolves, who breed and produce pups. The breeding pair becomes the dominate alphas, who build their pack of previous year offspring, new pups and other non-related, non- breeding adults. Packs hunt, feed, travel, rest and rear pups together. Pack size can be variable, ranging from approximately 2 to 27. During the breeding season (peaking in mid to late February), wolves will limit their movements within close distance to a den site and become very susceptible to disturbance. Pups (varies from 1-9) are born in late April, and after approximately 8 weeks are moved to a series of rendezvous sites throughout the summer.

Wolves are carnivorous, feeding mostly on ungulates, but are also opportunistic, scavenging carrion, eating vegetation and insects, or taking smaller prey such as rabbits, birds, rodents and coyotes. Wolf pups will begin hunting with their pack by the fall of their first year. At sexual maturity (approx. 22 months of age), wolves will either stay with their pack as non-breeders or may leave (called dispersers) to find a mate of their own and start a new pack. Dispersers may travel to suitable neighboring areas or move hundreds of miles to find unoccupied habitat, a mate or to join another pack. This movement creates a meta-population network and facilitates genetic exchange throughout the population. Expected dispersal movements of males are approximately 60 miles and 48 miles for females. Dispersal movements may range from approximately 10-168 miles or more. Peak seasons for dispersal are January-February and May-June.

Pack movement and territory use varies from year to year as prey availability, disturbance, and intraspecific conflict with neighboring packs change. Habitat preferences (such as elevation, vegetation type, land use, land ownership, presence/abundance of prey species, etc.) are also highly variable between packs, showing a large range of tolerance and demonstrating the generalist tendencies of the species. Territory size is also variable, ranging between 24 and 934 square miles.

Human caused mortality is the highest risk for wolves, including control actions in response to conflict, legal and illegal shooting, and car/train collisions. The only mortality source believed to be substantial enough to impact recovery goals are human caused. Natural-caused mortality sources include conspecific conflict between packs, hunting/accidental injuries, old age, disease and starvation.

In November 2011, OR7, from the Imnaha Pack in northeast Oregon was documented to have traveled through the Deschutes National Forest. OR7 is now in the Rogue Pack which established in 2014 in the southern Cascades (Klamath and Jackson Counties). Other dispersers include OR25 (currently using the Sprague and Silver Lake Wildlife Management Units), OR3 and OR28. In early November 2015, OR28 dispersed from the Mt. Emily pack in Umatilla County and established an Area of Known Wolf Activity (AKWA) in the Fort Rock and Silver Lake Wildlife Management Units of Klamath and Lake Counties. In the summer of 2016, OR28 was believed to have formed a new breeding pair with OR3 in this area, which is southeast of the Deschutes National Forest, approximately 54 miles from the project area. In October 2016, OR28 was illegally shot and killed. OR3 is an 8 year old male originally from the Imnaha Pack that dispersed in 2011 and whose whereabouts have been largely unknown in recent years. In March of 2019, a new Area of Known Wolf Activity (AKWA) was designated by ODFW in the southern portion of the Indigo Unit (Douglas and Lane Counties). Wolf activity has been reported by the public in this area for several years and biologists found tracks of multiple wolves (suggesting wolves were resident in the area) in late 2018. Trail camera images of three wolves were captured by a US Fish and Wildlife Service remote camera on Feb. 20, 2019 in the Umpqua National Forest. This area is north of the Rogue AKWA and is approximately only 40 miles south of the Kew project area. At this time, wildlife managers have little data regarding the specifics of this new group (i.e., sex, breeding status, and specific use area) and additional surveys are needed to find out more information.

ODFW provides a minimum known number of wolves present in Oregon at the end of the year; it is a direct count of wolves, not an estimate. The minimum known wolf number in 2017 was 124, an 11% increase from 2016. ODFW also documents pack numbers annually. A pack is defined as four or more wolves traveling together in winter. Twelve packs were documented at the end of 2017 (see Figure 5), with a mean pack size of 7.3 wolves and ranging between four and eleven.

The twelve packs were distributed in two geographic areas of Oregon; eleven packs in northeastern Oregon and one in southwestern Oregon. Eleven percent of Oregon known wolves were in the West WMZ. Known wolf groups occurred in parts of Baker, Grant, Jackson, Klamath, Lake, Umatilla, Union, Wallowa, and Wasco Counties.

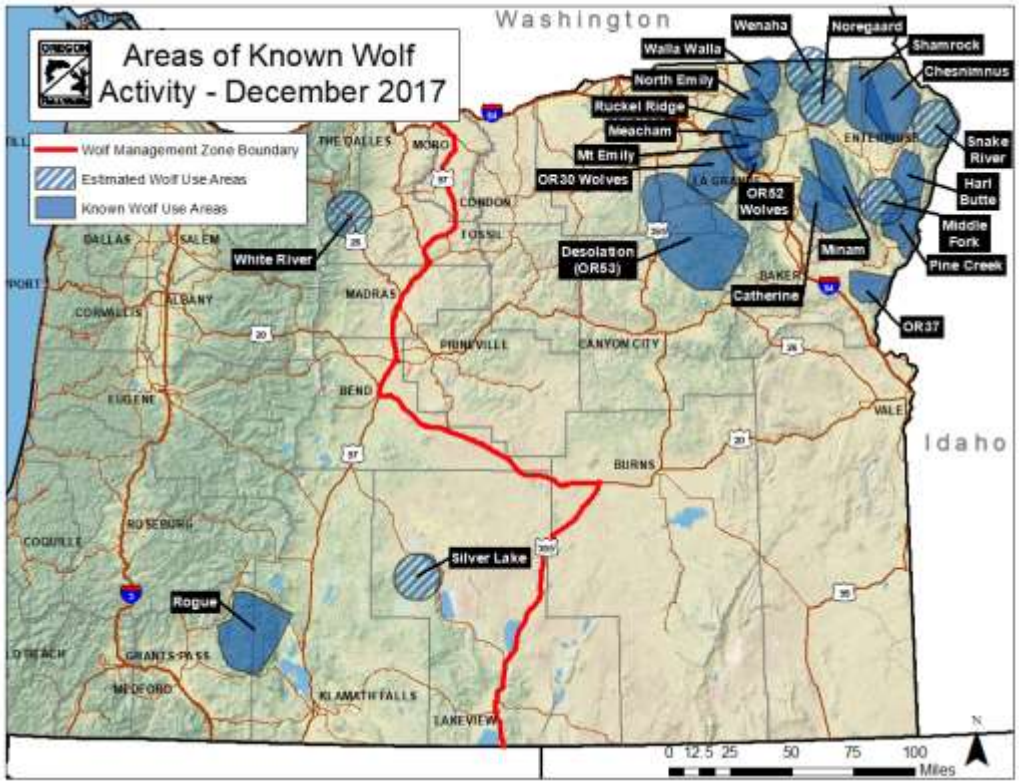

Figure 5. Known Areas of Wolf Activity.

Because wolves are habitat generalists, disperse long distances and maintain very large home ranges, the following is used by USFWS to define occupied wolf range (J. Stephenson, Personal Communication, 07/07/16).

> *Occupied wolf range: Area of confirmed presence of resident breeding packs or pairs of wolves or area consistently used by > 1 resident wolf or wolves over a period of at least 1 month. Confirmation of wolf presence is to be made or corroborated by the U.S. Fish and Wildlife Service. Exact delineation of the area will be described by (1) 5-mile radius around all locations of wolves and wolf sign confirmed as described above (non-radio monitored); (2) 5-mile radius around radio locations of resident wolves when < 20 radio locations are available (for radio monitored wolves only); or (3) 3-mile radius around the convex polygon developed from >20 radio locations of a pack, pair, or single wolf taken over a period of > 6 months (for radio monitored wolves).*

The proposed Greater Suttle Lake Vegetation Management Project area does not meet the definition of occupied wolf range. There are no areas of known wolf activity, established packs, den sites or rendezvous sites on the Deschutes National Forest (email communication between John Stevenson [USFWS] and Lauri Turner[USDA FS]), August 2, 2018). The project area is surrounded by roads (one being a major highway) and recreational facilities, as well as continuous recreational use, and would not support a den or rendezvous site. Consequently, this project would have **no effect** to the gray wolf or their habitat. As there would be no effect to wolf habitat or populations on the Deschutes National Forest, there are no direct, indirect or cumulative effects. No further analysis is required.

PACIFIC FISHER, *Pekania pennanti*
FS PROPOSED, S

Habitat Needs and Existing Condition

The fisher is proposed to be federally listed and is a Regional Forester Sensitive Species. A detailed review of the taxonomy, genetics, habitat use, life history, range, distribution, and occurrence information for the fisher in the west coast States is presented in the Species Report (USFWS 2016), available on the Internet at http:// www.regulations.gov under Docket No. FWS–R8–ES–2014– 0041.

A 2004 Species Assessment by the US Fish and Wildlife Service documents key aspects of fisher habitat as those associated with late-successional forests (i.e. high canopy closure, large trees and snags, large logs, hardwoods, and multiple canopy layers).

Fishers prefer closed-canopy (greater than 60%), late-successional forests with large physical structures (live trees, snags, and logs), especially if associated with riparian areas (Ruggiero et al. 1994, Csuti et al. 2001, Olson et al. 2014). Weir and Corbould (2010) found that fishers were limited by the openness of the stand; one reason being that escape cover (i.e. trees for climbing) are far apart making fishers further susceptible to terrestrial predators. Distribution of fishers is limited by elevation and snow depth (Krohn et al. 1997). Deep snowpack is also largely avoided by fishers (Olson et al. 2014). Fishers generally avoid areas of high human disturbance either from road density or recreational developments. Although fishers have been shown to avoid dry habitat types, which are frequently dominated by ponderosa and lodgepole pine, they are associated with montane mixed conifer and riparian habitat (Olson et al. 2014). Aubrey and Raley (2006) found in southwestern Oregon, fishers were found denning and resting at 4,000 feet elevation, more than 80% canopy closure, and more than 16 snags and 67 logs at least 20 inches dbh per acre. Denning and resting sites were also observed in large live trees (mostly Douglas-fir) with mistletoe brooms, limb clumping, rodent nests, or some other deformity. The fisher prefers to hunt in denser forests. Though an agile climber, most of its time is spent on the forest floor, where it prefers to forage around fallen trees (https://en.wikipedia.org/wiki/Fisher_(animal).

Zielinski et al. (2013) found that forest management activities such as thinning, selection harvest and clear cutting did not exclude fisher use of an area at a threshold of approximately 2.6% of the habitat treated (more than 2.6% of habitat managed resulted in less fisher use and connectivity of habitat was important).

Although rare, fishers have been documented in the Three Sisters area, near Mt. Bachelor, Elk and Hosmer Lakes, and west of little Cultus Lake (Deibert et al. 1970). In 1999, a dispersing radio collared male travelled to the southern portion of the Crescent Ranger District from the Rogue River – Siskiyou National Forest. An unconfirmed sighting was reported within the Bridge Creek drainage in 2003. Ongoing carnivore monitoring is occurring across the Forest, and to date there have been no fisher detections. Currently the nearest documented population is on the Rogue River – Siskiyou N.F., over 100 miles from the project area.

Through a Forest wide mapping effort, pacific fisher habitat was mapped across the entire Deschutes National Forest. Habitat for pacific fisher include dense canopied stands. Approximately 1 acre of suitable habitat is mapped in the project area. This one acre is made up of 6 separate 0.1 to 0.2 acre patches of habitat. Approximately 10,198 acres of suitable habitat are mapped in the Upper Metolius River Watershed. There is also approximately 72,615 acres of suitable habitat mapped across the Deschutes National Forest.

Considering the small size of the habitat fragments and that this area is surrounded by roads, one being a major highway, trails, and campgrounds, as well as continuous year round recreational use, it is highly unlikely that a fisher could utilize the available habitat. Consequently, this project would have **no effect** to Pacific fisher or their habitat. As there would be no effect to fisher habitat or populations on the Deschutes National Forest, there are no direct, indirect or cumulative effects. No further analysis is required.

NORTH AMERICAN WOLVERINE, *Gulo gulo*
FS PROPOSED, S

Habitat Needs and Existing Condition

In 2013, the U.S. Fish and Wildlife Service proposed listing the Northern Rockies distinct population segment of North American wolverine under the Endangered Species Act (USDI 2013). However, based on their review of the best available scientific and commercial information, they determined that wolverine appear to be little affected by habitat modifications and changes to the vegetative characteristics derived from land management activities such as timber harvest and prescribed fire. Furthermore, the proposed rule determined that the types of forest roads associated with wolverine habitat are unlikely to affect wolverine movement. Consequently it was determined that these types of land management activities would not significantly affect the conservation of the United States population of wolverine (USDI 2013). On August 13, 2014, the USFWS withdrew its proposal to list the wolverine, finding that current and future factors affecting wolverine were "not of sufficient imminence, intensity or magnitude to indicate that the wolverine is in danger of extinction (endangered), or likely to become endangered within the foreseeable future (threatened)" (USDI 2013).

The North American wolverine is also currently a Region 6 Sensitive Species List (USDA 2018) as well as designated as a Management Indicator Species for the Deschutes National Forest (USDA 1990). NatureServe (2019) gives them a state ranking of 'critically imperiled".

Wolverines are a low density, wide-ranging species occurring over a wide variety of alpine, boreal and arctic habitats. They are primarily scavengers but will also hunt small animals and birds, and eat fruits, berries and insects (Hornocker and Hash 1981). While Hornocker and Hash (1981) reported that wolverines tended to use lower elevations in the winter and higher elevations in summer, more recent research (Copeland et al. 2010) states that in montane habitats at southerly latitudes, wolverines remain at high elevations throughout the year. Instead, the presence of persistent spring snow cover (i.e., snow cover from April 24 through May 15) has been determined to define wolverine habitat year-round (Aubry et al. 2007). A review of wolverine research in nine radiotelemetry study areas revealed that approximately 95 percent of summer locations and 86 percent of winter locations fell within areas that had persistent spring snow cover at least one of seven years (Copeland et al. 2010).

Female wolverines give birth and rear young from mid-February to approximately the end of March in dens excavated in (often deep) snow. While dens in Idaho have been reported as occurring on "rocky sites, such as north-facing boulder talus or subalpine cirques" (USDI 2013), Copeland et al. (2010) found that female wolverines also showed a preference for denning in habitats that had persistent spring snow cover at least five of seven years.

A draft habitat assessment for the wolverine on the Deschutes National Forest was completed in 2012 (USDA 2012e). Wolverine denning habitat for the Deschutes National Forest was modeled using alpine dry, alpine meadow, glacier and rock talus lands with north aspects of 0-22.5 degrees and 337.5-360

degrees. The results from this were clipped using only the acres above 5,500 feet in elevation. A total of 1,664 acres were mapped, generally in small, disjunct areas extending from Tolo Mountain at the south end of the Crescent District northward including areas on Cowhorn Mountain, Diamond Peak, Paulina Peak, Broken Top, South Sister, Middle Sister, North Sister, Black Crater, and Mount Washington. Aubry et al. (2007) reported that virtually all of the wolverine records located in the Pacific states were within or near alpine areas.

The Greater Suttle Lake Vegetation Management project area is not suitable wolverine habitat. There is no predicted wolverine denning habitat near the project area. Consequently, this project would have **no effect** to wolverine or their habitats. As there would be no effect to wolverine habitat or populations on the Deschutes National Forest, there are no direct, indirect or cumulative effects. No further analysis is required.

Sensitive Species

USDA Forest Service policy (FSM 2670) requires a review of programs and activities through a biological evaluation, to determine their impact on sensitive species. Sensitive species are determined by the Regional Forester (FSM 2670.5) and are those species for which population viability is a concern. Sensitive species from the R6 Regional Forester's Sensitive Species list were further analyzed if they have potential habitat in the project area. Some Sensitive Species are also Management Indicator Species (MIS) identified in the Deschutes National Forest Land and Resource Management plan and were analyzed for the Forest and the project area. Surveys have not been conducted for each species. In some cases, no surveys have occurred and in others, surveys may not have been conducted on a consistent basis. Incidental observations may also contribute to known sightings.

Species that do not have suitable habitat or are not regularly present or expected to be in or near the proposed activity area, or species that are affected at a level that does not increase risk to the species or impacts have been adequately mitigated by altering the design of the project, are not analyzed in detail. Species that have the potential to be affected by the project are analyzed in detail. Table 6 lists all of the potential sensitive species that occur on the Forest.

Table 6. Regional Forester Sensitive Species Occurring or Potentially Occurring on the Deschutes National Forest, Their Status (including NatureServe Ranking), Habitat and Presence, and Effect from the Project.

Regional Forester Sensitive Species				
Species	**Status & NatureServe Ranking**	**Habitat**	**Habitat/ Presence in Project Area**	**Effect**
BIRDS				
Northern bald eagle (*Haliaeetus leucocephalus*)	**Sensitive, MIS, G5 Secure – state not available**	**Lakes, large trees, snags**	**Yes**	**Potential loss of nesting and roosting habitat; potential disturbance or loss of individuals during the nesting season.**
Bufflehead	**Sensitive, MIS,**	**Lakes, snags**	**Yes**	**Loss of nesting habitat; potential**

Regional Forester Sensitive Species				
Species	**Status & NatureServe Ranking**	**Habitat**	**Habitat/ Presence in Project Area**	**Effect**
(*Bucephala albeola*)	**S2B Imperiled**			**disturbance or loss of individuals during the nesting season.**
Harlequin duck (*Histrionicus histrionicus*)	Sensitive, MIS, S2B Imperiled	Rapid streams, Large trees	Link Creek occurs within the project area but does not afford the stream requirements this species needs.	No Impact
Horned grebe (*Podiceps auritus*)	Sensitive, MIS, S2B Imperiled	Marshes, wetlands	No habitat	No Impact
Tule goose (*Anser albifrons*)	Sensitive, S2S3N Imperiled-Vulnerable	Nests on marshy ponds in the tundra; winters in open country	No habitat	No Impact
Tricolored blackbird (*Agelaius tricolor*)	Sensitive, S2B Imperiled	Lakeside, bulrush (cattails)	No habitat	No Impact
Northern waterthrush (*Seiurus noveboracensis)*	Sensitive, S2B Imperiled	Riparian streambanks with dense willows	Some willows, not dense enough	No Impact
Yellow Rail (*Coturnicops noveboracensis*)	Sensitive, S2B Imperiled	Marsh	No habitat	No Impact
Greater sage grouse (*Centrocercus urophasianus)*	Sensitive, S3 Vulnerable	Sagebrush flats	No habitat	No Impact
Lewis' woodpecker (*Melanerpes lewis*)	**Sensitive, MIS, S2 Imperiled**	**Open ponderosa pine snags, burned areas**	**The project occurs adjacent to habitat.**	**Potential disturbance during the nesting season from logging and fuels activities.**
White-headed woodpecker (*Picoides albolarvatus*)	**Sensitive, MIS, S2 Imperiled**	**Large-diameter ponderosa pine snags**	**The project occurs adjacent to habitat.**	**Potential disturbance during the nesting season from logging and fuels activities.**

Regional Forester Sensitive Species				
Species	**Status & NatureServe Ranking**	**Habitat**	**Habitat/ Presence in Project Area**	**Effect**
MAMMALS				
Fringed myotis *(Myotis thysanodes)*	**Sensitive, S2 Imperiled**	**Caves, mines, rock crevices, desert, grassland, woodland**	**Roosting and foraging habitat**	**Potential disturbance or loss of individuals from impacts to roost tree removal, pre-commercial thinning, and fuels activities.**
Pallid bat (*Antrozous pallidus*)	**Sensitive, S2 Imperiled**	**Caves, mines, bridges, buildings, rock outcrops, snags in conifer forests, desert**	**Roosting and foraging habitat**	**Potential disturbance or loss of individuals from impacts to roost tree removal, pre-commercial thinning, and fuels activities.**
Spotted bat (*Euderma maculatum*)	Sensitive; S2 Imperiled	Caves and rock crevices	No habitat	No Impact
Townsend's big-eared bat (*Corynorhinus townsendii*)	**Sensitive, MIS, S2 Imperiled**	**Caves, mines, bridges, buildings, rock outcrops, snags in conifer forests, desert**	**Roosting and foraging habitat**	**Potential disturbance or loss of individuals from impacts to roost tree removal, pre-commercial thinning, and fuels activities.**
Sierra Nevada red fox *Vulpes necator*	Sensitive, S1 Critically Imperiled	High elevation forest, shrub and meadow	No habitat	No Impact
AMPHIBIANS				
Columbia spotted frog (*Rana luteiventris*)	Federal Proposed, Sensitive, S2 Imperiled	Shallow lakes, ponds	No habitat	No Impact
INVERTEBRATES				
Crater Lake tightcoil (*Pristiloma articum crateris*)	**Sensitive, S2 Imperiled**	**Perennial riparian areas**	**Wetland areas within Link Creek Campground**	**Approximately 1.6 acres of riparian/wetland habitat could be impacted; project activities and heavy machinery could crush mollusk**

Regional Forester Sensitive Species				
Species	**Status & NatureServe Ranking**	**Habitat**	**Habitat/ Presence in Project Area**	**Effect**
				species and alter habitat microclimate. Trees may be cut and left, which could crush mollusks, but would also provide habitat.
Shiny tightcoil *(Pristiloma wascoense)*	**Sensitive, S2 Imperiled**	**Aspen stands within ponderosa/Douglas-fir forest Found under woody debris and rocks, in leaf and needle litter and duff.**	**Wetland areas within Link Creek Campground**	**Approximately 1.6 acres of riparian/wetland habitat could be impacted; project activities and heavy machinery could crush mollusk species and alter habitat microclimate. Trees may be cut and left, which could crush mollusks, but would also provide habitat.**
Dalles mountain snail (*Oreohelix variablilis*)	Sensitive, S2 Imperiled	Springs and seeps occurring in open and dry areas that are moderately xeric, talus slopes with sage scrub/talus scrub.	No habitat	No Impact
Dalles Hesperian (*Vespericola columbiana depressa*)	**Sensitive, S2 Imperiled**	**This species typically prefers undisturbed mixed forest types, moist microclimates, deep leaf-litter, and downed logs.**	**Wetland areas within Link Creek Campground**	**Approximately 1.6 acres of riparian/wetland habitat could be impacted; project activities and heavy machinery could crush mollusk species and alter habitat microclimate. Trees may be cut and left, which**

Regional Forester Sensitive Species				
Species	**Status & NatureServe Ranking**	**Habitat**	**Habitat/ Presence in Project Area**	**Effect**
				could crush mollusks, but would also provide habitat.
Silver-bordered fritillary (*Boloria selene*)	Sensitive S2 Imperiled	Bogs and wet meadows	No habitat	No Impact
Western bumblebee (*Bombus occidentalis*)	**Sensitive S1S2 Critically Imperiled to Imperiled**	**Forest edges, gardens, near houses and urban areas, chaparral and shrub areas, and mountain meadows**	**Nesting, foraging, and overwintering habitat occur throughout the project area.**	**Project activities may crush nests and overwintering queens; short-term reduction of foraging habitat.**
Morrison's bumble bee (*Bombus morrisoni*)	**Sensitive S1S2 Critically Imperiled to Imperiled**	**Forest edges, gardens, near houses and urban areas, chaparral and shrub areas, and mountain meadows**	**Nesting, foraging, and overwintering habitat occur throughout the project area.**	**Project activities may crush nests and overwintering queens; short-term reduction of foraging habitat.**
Suckley's cuckoo bumble bee (*Bombus suckleyi*)	**Sensitive, S1 Critically Imperiled**	**Forest edges, gardens, near houses and urban areas, chaparral and shrub areas, and mountain meadows**	**Nesting, foraging, and overwintering habitat occur throughout the project area.**	**Project activities may crush nests and overwintering queens; short-term reduction of foraging habitat.**

NORTHERN BALD EAGLE, *Haliaeetus leucocephalus*
S, MIS

Measure: Proportion of reproductive habitat acres impacted; disturbance during the nesting season.

Habitat Needs and Existing Condition

Bald eagles exhibit a strong territorial and nest-site fidelity; breeding areas are often reused in successive years (Marshall et al. 2003). Breeding habitat is typically associated with water, but actual distance to water varies within and among populations (Buehler 2000). Other factors, such as the quality of the surrounding foraging areas, the structure of aquatic habitat, and the proximity of human development and disturbance also play a role in ultimate nest site location (Buehler 2000).

In Oregon, nest sites are usually associated with large bodies of water, but can occur in any habitat with available prey. The bald eagle primarily nests in forested areas with the presence of large (mature) trees, generally >32 inches dbh, near the ocean, along rivers, and at estuaries, lakes, and reservoirs (Isaacs and Anthony 2001). Shoreline is an important component of nesting habitat; Anthony and Isaacs (1989) found that 84% of Oregon nests were within 1 mile (1.6 km) of water. Ponderosa pine and Douglas-fir trees with large open limb structures are preferred for nesting on the Deschutes National Forest.

A Bald Eagle Management Area (BEMA) identified in the Deschutes Land and Resource Management Plan (USDA FS 1990) borders approximately 1 mile of road within the project area. Through a Forest wide mapping effort, Bald Eagle habitat was also mapped across the entire Deschutes National Forest. The entire project area is mapped as currently suitable habitat due to its proximity to Suttle Lake. Within the Lower Lake Creek Subwatershed, there is approximately 336 acres of habitat, with approximately 143,185 acres on the Deschutes National Forest. There is also approximately 143,185 acres of suitable habitat is mapped across the Deschutes National Forest.

There is one known bald eagle nest site within the BEMA, within ¼ mile of the project area. This nest site is currently active (2019 nesting season).

Environmental Consequences

Direct and Indirect Impacts

There is approximately 15 acres of the project that occur within a Bald Eagle Management Area (BEMA) adjacent to the 2070 and 2060 Roads. Removing large snags and diseased trees within the BEMA would reduce potential roosting trees. Areas within the project area but outside of the BEMA could also be utilized by bald eagles due to their proximity to the lakes, therefore the removal of this habitat would also remove potential roost and nest trees on an additional 232 acres. The loss of these large trees would have long-term impacts on bald eagle habitat.

Project Design Criteria are in place to protect these birds, but if for any reason (i.e. weather, contracting issues, etc.) this project were to occur during the breeding season (January 1 – August 31), tree removal (hazard/danger and pre-commercial thinning), piling, burning, and any other noise disturbing activities within ¼ mile of an active nest or activities occurring within ¼ mile line-of-sight, could have direct, negative impacts to nesting bald eagles. Disturbance during this time could result in nest failure (noise disturbance) or direct loss of individuals (adults away from the nest for too long).

Other aspects of the project including planting, transplanting, seeding, boraxing cut trees, and power line burial at Camp Tamarack would have negligible impacts to the northern bald eagle.

Cumulative Impacts

This project would add incrementally to reasonably foreseeable actions of removal of potential roost and nest trees. Future danger and hazard tree removal would continue to occur within and adjacent to the project area as trees continue to succumb to the diseases that have prompted this project. The removal would not be at the levels as this project, but would be an occasional tree. Therefore, cumulative impacts are expected to the northern bald eagle from this project, but the degree of impact would be immeasurable as the amount of trees and where they are is not known at this time. There are still areas around Suttle Lake, Scout Lake, and Dark Lake that are not being treated where potential roost/nest trees occur.

Project Design Criteria/Mitigation Measures

●Disturbing activities (danger/hazard tree removal, pre-commercial thinning, piling, and burning) would not occur within ¼ mile and/or line of site during the northern bald eagle nesting season from January 1 – August 31. This would pertain to the following units: Units 2, 8, and 9 (portions within 1/4 mile buffer), and Unit 3.

Consistency

Wildlife standards and guidelines M3-14 and 15, and M3-33 will be assessed. This project would be consistent with the Forest Plan by adhering to the following Standards and Guidelines in Table 7.

Table 7. Standards and Guides for the Northern Bald Eagle from the Forest Plan.

Standard and Guideline	Does Not Meet, Meets, Applicable, Not Applicable	Rationale
M3-14 – Active nest sites will be protected from disturbing human activities during the nesting season.	Applicable	There is one known active nest within ¼ mile of the project area.
M3-15 – Disturbing activities within ¼ mile of an active nest will be restricted between January 1 and august 31.	Applicable	Project Design Criteria are incorporated into this document to protect the active nest during the implementation of this project.
M3-33 – No fuels management projects should be conducted within ¼ mile of active nests during the nesting season	Applicable	Project Design Criteria are incorporated into this document to protect the active nest during the implementation of this project.

This is written into this document as a Project Design Criteria and will further be addressed within the projects implementation plan.

Determination/Conclusion

Implementation of the Greater Suttle Lake Vegetation Management Project would remove potential roost trees within approximately 15 acres of BEMA habitat. Potential roost and nest trees could also be removed within the remainder of the project due to its proximity to foraging habitat (Suttle, Dark, and Scout Lake). Activities that occur within ¼ mile line-of-sight or noise disturbing activities that would occur within ¼ miles of an active nest (January 1 – August 31) could have a negative impact to nesting bald eagles if for any reason a seasonal restriction cannot be adhered to. Therefore, this project, based on the above described potential impacts, ***may impact individuals, but would not likely contribute to a trend toward federal listing for the northern bald eagle.***

Because this project impacts a minimal 0.1% of suitable habitat across the Forest, the overall direct, indirect, and cumulative effects would result in a small negative trend of habitat. This loss of habitat would be insignificant at the scale of the Forest. The Greater Suttle Lake Vegetation Management Project is consistent with the Forest Plan (by incorporating project design criteria for protection during the

nesting season), thus continued viability of the northern bald eagle is expected on the Deschutes National Forest.

BUFFLEHEAD, *Bucephala albeola*
S, MIS

Measure: Proportion of reproductive habitat acres impacted; disturbance during the nesting season.

Habitat Needs and Existing Condition

The bufflehead typically nests at high-elevation forested lakes in Central Oregon, using cavities or artificial nest boxes in trees close to water, with most nests within 75 feet of water, but sometimes as far as 650 feet away (Marshall et al. 2003). The birds nest in natural cavities or abandoned northern flicker holes in mixed coniferous-deciduous woodlands near lakes and ponds.

Buffleheads have been observed at Suttle and Scout Lake.

Environmental Consequences

Direct and Indirect Impacts

The proposed project would be removing dead and diseased trees that would afford suitable habitat for the bufflehead. The loss of large dead and diseased trees would have long-term impacts on bufflehead habitat within the project area.

If the project occurs during the breeding season (April 15 – July 15), tree removal, pre-commercial thinning, piling, burning, and burial of the Camp Tamarack power lines could have direct, negative impacts to nesting buffleheads that may be within or adjacent to the project area (it is unknown without surveys if there are any active nests within a specific action area). Disturbance during this time could result in nest failure (noise disturbance) or direct loss of individuals (from tree removal or adults away from the nest for too long.

Other aspects of the project including planting, transplanting, seeding, and boraxing cut trees would have negligible impacts to buffleheads.

Cumulative Impacts

This project would add incrementally to reasonably foreseeable actions of removal of potential nest trees. Future danger and hazard tree removal would continue to occur within and adjacent to the project area as trees continue to succumb to the diseases that have prompted this project. The removal would not be at the levels as this project, but would be an occasional tree. Therefore, cumulative impacts are expected to the bufflehead from this project, but the degree of impact would be immeasurable as the amount of trees and where they are is not known at this time. There are still areas around Suttle Lake, Scout Lake, and Dark Lake that are not being treated where potential nest trees occur.

Project Design Criteria/Mitigation Measures

●To minimize disturbance and direct impact to nesting waterfowl, including buffleheads, **limit the amount of dead and diseased tree removal, thinning, piling, and burning to the extent feasible during the time from April 15 to July 15.**

● Snags determined to be safety hazards in areas of concentrated public use should be **topped** (a minimum of 15" dbh, but prefer 20"dbh or larger) ***or removed*** (M11-31). This could also pertain to diseased trees that are considered a danger/hazard tree. Potential topping of trees would be dependent on several factors including where the trees are located, the size, and the condition of the tree.

●Nest boxes should be placed in campgrounds and other places of concentrated public use if all dead and diseased trees are removed, to allow observation opportunities of cavity-nesting wildlife (M11-31). The placement and the numbers that could be placed would be dependent upon post-treatment conditions.

Consistency

Wildlife standards and guidelines M11-31 will be assessed. This project would be consistent with the Forest Plan by adhering to the following Standards and Guidelines in Table 8:

Table 8. Standards and Guides for Wildlife in MA 11 from the Forest Plan.

Standard and Guideline	Does Not Meet, Meets, Applicable, Not Applicable	Rationale
M11-31– Snags determined to be safety hazards should be topped or removed. Nest boxes should be placed in campgrounds and other places of concentrated public use to allow observation opportunities of cavity nesting wildlife.	Applicable	Dead and diseased trees occur within the campgrounds and M11 allocations adjacent to the campgrounds.

This is written into this document as a Project Design Criteria and will further be addressed within the projects implementation plan.

Determination/Conclusion

Implementation of the Greater Suttle Lake Vegetation Management Project would remove potential nest trees adjacent to Suttle, Scout, and Dark Lakes. Activities that would occur adjacent to active nests (April 15 – July 15) could have a negative impact to nesting buffleheads. Therefore, this project, based on the above described impacts, and that this species is considered Imperiled (S2B) by NatureServe (2019), m***ay impact individuals or habitat, but would not likely contribute to a trend toward federal listing for the bufflehead.***

Because this project impacts a minimal amount of suitable habitat around lakes on the Forest and it may occur during the nesting season, the overall direct, indirect and cumulative impacts would result in a small negative trend of habitat and increased disturbance. This loss of habitat and increased disturbance would be insignificant at the scale of the Forest. The Greater Suttle Lake Vegetation Management Project is

consistent with the Forest Plan (by incorporating project design critieria for potential snag/diseased tree topping and nest box placement), thus continued viability of the bufflehead is expected on the Deschutes National Forest.

LEWIS' WOODPECKER, *Melanerpes lewis*
FS SENSITIVE, MIS

Measure: Proportion of reproductive habitat acres impacted; disturbance during the nesting season.

Habitat Needs and Existing Condition

The following information is summarized from the Species Assessment for Lewis' Woodpecker for the Deschutes National Forest (USDA FS 2012k). For a detailed assessment on the Lewis' woodpecker, see this document.

The Lewis's woodpecker is an uncommon permanent resident in open forests and post-fire habitats on the east side of the Cascades. Habitat for the Lewis's woodpecker is old-forest, single-storied ponderosa pine. Lewis's woodpeckers have been termed "burn specialists" because the large majority of their nests are found in snags in burned pine forests. They are most abundant in recent burns (2 to 4 years) and older burns (10-30 years post-fire) (Saab and Dudley 1998, Saab et al. 2007). It is positively associated with large diameter and higher snag densities in ponderosa pine patches in more open or salvage logged areas (Saab et al. 2002, Saab et al. 2009).

Suitable conditions for nesting and foraging include increased arthropod populations, shrubby understories, open canopies, and nest cavities created by strong excavators (Saab and Dudley 1998). Lewis' woodpeckers feed on flying insects and are weak cavity excavators and require large nest snags in an advanced state of decay that are easy to excavate or they use old cavities created by other woodpeckers, primarily northern flickers and hairy woodpeckers (Wisdom et al. 2000, Marshall et al. 2003, NatureServe 2019). Linder and Anderson (1998) estimate that optimal canopy closure for Lewis's Woodpeckers is less than 30%. Nest trees generally average 17 to 44 inches (Saab and Dudley 1998, Wisdom et al. 2000).

Primary threats to the Lewis's woodpecker include the loss of large snags, intensive grazing, timber harvest, salvage logging of burned ponderosa pine forests, loss of cottonwood trees, human development in breeding and wintering habitat, and human disturbance at nest sites (Tobalske 1997, Marshall et al. 2003, Abele et al. 2004, NatureServe 2019). Fire suppression in ponderosa pine forests has resulted in stands with increased stem densities (with more shade tolerant species), reduced shrub and grass understories, and increased canopy closures (Abele et al. 2004). Other threats include competition with invasive species, most notably European starlings.

The Lewis' woodpecker is identified in the Conservation Strategy for Landbirds of the East-Slope of the Cascades Mountains in Oregon and Washington as a focal species for ponderosa pine forests with patches of burned old forest (Altman 2000). It is thought to be declining throughout its range, possibly due to loss of suitable habitat, prospects for nest and food storage trees, and competition for nest holes.

In the assessment completed for MIS, Lewis' woodpecker habitat was mapped using Viable modeling across the entire Deschutes National Forest. Lewis' woodpecker nesting habitat was mapped using the drier ponderosa pine forests in the early, mid and late seral stages. In addition, other plant association

groups where ponderosa pine is the dominant species in the early and mid-seral stages was mapped as habitat. Stand size had to have a minimum diameter of 15"dbh or greater and have open stand characteristics (based on the canopy cover level thresholds for each PAG) to be mapped as potential habitat. Older fires (greater than 5 years old) were added as habitat.

Immediately adjacent to the project area is approximately 40 acres of Lewis Woodpecker habitat, while the subwatershed includes 554 acres. Approximately 122,727 acres occurs on the Forest.

There are no known Lewis' woodpecker nest sites or sightings within or directly adjacent to the project area. Known breeding has been documented in low numbers along Why-chus Creek (Marshall et al. 2003) and in recent burned areas across the Deschutes.

The Lewis' woodpecker is considered "imperiled" by NatureServe (2019). Because of this ranking and the listing of this species as sensitive, it is important to consider the necessary habitat constituents (snags) and protect them as much as possible.

Environmental Consequences

Direct and Indirect Impacts

There is no current mapped Lewis' woodpecker habitat proposed for removal of danger trees, but it does occur adjacent to roadside units.

If project activities occur during the breeding season (April 15 – July 15), removal of dead and diseased trees could have direct, negative impacts to nesting woodpeckers that may be adjacent to active units (it is unknown without surveys if they are nesting adjacent to any units). Disturbance during this time could result in nest failure (noise disturbance) or direct loss of individuals (from adults away from the nest for too long).

While tree removal and fuels activities have the potential to disrupt nesting pairs of Lewis's woodpeckers (which is highly unlikely, but possible, due to the small amount of habitat adjacent to the project area), this would be a short-term impact (1-3 years) and only where activities would occur during the spring nesting season.

Other aspects of the project including planting, transplanting, seeding, boraxing cut trees, and Camp Tamarack power line burial would have negligible impacts to Lewis' woodpeckers.

Cumulative Impacts

This project would not add incrementally to ongoing and reasonably foreseeable actions within or adjacent to the project area or within the subwatershed for loss of Lewis' woodpecker nesting habitat or disturbance during the nesting season (very little habitat occurs within the subwatershed). With no other actions occurring, there would be no cumulative impacts from the Greater Suttle Lake Vegetation Management Project to Lewis' woodpecker.

Project Design Criteria/Mitigation Measures

●To minimize disturbance and direct impact to nesting woodpeckers, including the Lewis' woodpecker, limit the amount of dead and diseased tree removal, thinning, piling, and burning to the extent feasible during the time from **April 15 to July 15**.

Consistency

Not applicable as no hazard/danger trees are being removed within mapped Lewis' woodpecker habitat.

Determination/Conclusion

Implementation of the Greater Suttle Lake Vegetation Management Project would not remove any potential nest or roost trees from suitable mapped habitat. There are acres outside of the project area that could be utilized by Lewis' woodpeckers. Activities that would occur adjacent to potential active nests (April 15 – July 15) could have a negative impact to nesting woodpeckers. Therefore, this project, based on the above described impacts, and that this species is considered Imperiled (S2) by NatureServe (2019), **m*ay impact individuals or habitat, but would not likely contribute to a trend toward federal listing for the Lewis' woodpecker.***

Because this project may occur during the nesting season, the overall direct and indirect effects would result in a small negative trend of increased disturbance. This potential increase in disturbance would be insignificant at the scale of the Forest. The Greater Suttle Lake Vegetation Management Project is consistent with the Forest Plan (by incorporating project design criteria for protection during the nesting season), thus **continued viability of Lewis' woodpecker is expected** on the Deschutes National Forest.

WHITE-HEADED WOODPECKER, *Picoides albolarvatus*
FS SENSITIVE, MIS

Measure: Proportion of reproductive habitat acres impacted; disturbance during the nesting season.

Habitat Needs and Existing Condition

For the detailed assessment on the white-headed woodpecker for the Deschutes National Forest, see the Forest-wide Species Assessment (USFS 2012).

White-headed woodpeckers are uncommon permanent residents in forests east of the Cascades. They use habitat with large open ponderosa pine, low shrub levels and large snags. Dixon (1995) found white-headed woodpecker densities increased with increasing old-growth ponderosa pine trees and showed a positive association with large ponderosa pine. The white-headed woodpecker is a primary cavity excavator of soft snags. This woodpecker is the only woodpecker species to rely heavily on seeds of ponderosa pine for food (Marshall et al. 2003).

Dixon (1995) found white-headed woodpeckers did not use the same kind of tree for nesting as they did for roosting. Nest trees were typically dead, had broken tops, were shorter in height, contained more cavities, and had a higher percentage of bark present than roost trees. She also found they used different decay stages for nesting than roosting.

Foraging habitat is usually found in association with nesting habitat. Kozma (2011) surmised because white-headed woodpeckers are primarily bark gleaners and feed on ponderosa pine seeds throughout the winter, large diameter and old-growth ponderosa pine may be more important to white-headed woodpeckers because these trees have a greater bark foraging area, higher insect abundance, and greater and more frequent cone production than smaller trees.

Loss of large diameter, old ponderosa pine from logging, planting of even-aged stands, fire suppression (which favors replacement of pines by firs), snag removal and forest fragmentation have contributed to local declines (Garrett et al. 1996, NatureServe 2019). Fire suppression has altered fire regimes so that ponderosa pine forests are no longer maintained by natural fire and are being replaced by fir species in the understory (NatureServe 2019) as well as leading to increased shrub densities. Increased shrub densities may be a factor leading to increased mammalian nest predation and increased risk of avian predation on adults (Frenzel 2000). This species does persist in burned or cutover forests with residual snags and stumps and populations are more tolerant than those species associated with closed-canopy forest (Garrett et al. 1996). Incidental disturbance at nest and roost sites occurs around recreation sites but this species is tolerant of human activity in the nest vicinity as long as activity does not involve the nest tree (Garrett et al. 1996).

The white-headed woodpecker is identified in the Conservation Strategy for Landbirds of the East-Slope of the Cascades Mountains in Oregon and Washington as a focal species for large patches of old ponderosa pine forest with large snags (Altman 2000). Conservation issues include: (1) the loss of large ponderosa pine trees and snags; (2) fire suppression resulting understory encroachment by shade tolerant species; a lack of recruitment of young pine and increased fuel loadings; and (3) fragmented habitat resulting in increased energy expenditures and increased risk of predation (Altman 2000). Several of these strategies are relevant to the proposed actions of this project.

White-headed woodpecker habitat was mapped using "Viable" modeling across the entire Deschutes National Forest. White-headed woodpecker nesting habitat was mapped using ponderosa pine dominated forests which include all ponderosa pine plant association groups (PAGs) in all seral stages (early, mid, late) in addition to other PAGs (i.e. dry white fir) in the early and mid-seral stages where ponderosa pine is dominant. In addition, stand size had to be a minimum diameter of 10"dbh or greater and have open stand characteristics (based on the canopy cover level thresholds for each PAG) to be mapped as potential habitat. Recent fires (less than 5 years old) with stand replacement or mixed severity were also classified as habitat. Recent (since 2002) forest management activities that resulted in conditions other than described above were removed from mapped potential habitat.

The project area includes 7 acres of white-headed woodpecker habitat, while the watershed (Upper Metolius) (numbers do not occur for the subwatershed) includes 12,794 acres. Approximately 171,804 acres occurs on the Forest.

The white-headed woodpecker is considered "imperiled" by NatureServe (2019). Because of this ranking and the listing of this species as sensitive, it is important to consider the necessary habitat constituents (snags) and protect them as much as possible.

There are no known white-headed woodpecker sightings or nest sites within or directly adjacent to the project area.

Environmental Consequences

Direct and Indirect Impacts

There is currently 7 acres of mapped white-headed woodpecker habitat proposed for treatment. It is unlikely that any ponderosa pine would be removed within these acres, as the treatments within this habitat would be generally focused on the fir species.

If the project occurs during the breeding season (April 15 – July 15), removal of dead and diseased trees (adjacent to potential nests within ponderosa pine trees) could have direct, negative impacts to nesting woodpeckers that may be within or adjacent to active units (it is unknown without surveys if they are nesting adjacent to any units). Disturbance during this time could result in nest failure (noise disturbance) or direct loss of individuals (from adults away from the nest for too long).

While tree removal and fuels activities (piling and burning) have the potential to disrupt nesting pairs of white-headed woodpeckers (which is highly unlikely, but possible, due to the small amount of habitat in the project area), this would be a short-term impact (1-3 years) and only where activities would occur during the spring nesting season.

Other aspects of the project including planting, transplanting, seeding, boraxing cut trees, and the Camp Tamarack power line burial would have negligible impacts to white-headed woodpeckers.

Cumulative Impacts

This project would add incrementally to reasonably foreseeable actions not by removal of potential foraging and nest trees, but by the disturbance that would occur during the nesting season. Future danger and hazard tree removal would continue to occur within and adjacent to the project area as trees continue to succumb to the diseases that have prompted this project. The removal would not be at the levels as this project, but would be an occasional tree. Therefore, cumulative impacts are expected to the white-headed woodpecker from this project, but the degree of impact would be immeasurable as the amount of trees and where they are is not known at this time, plus the amount of habitat impacted with this project is minimal compared to that on the Forest. There are still areas adjacent to the project area that provide suitable habitat.

Project Design Criteria/Mitigation Measures

●To minimize disturbance and direct impact to nesting woodpeckers, including the white-headed woodpecker, limit the amount of dead and diseased tree removal, thinning, piling, and burning to the extent feasible during the time from **April 15 to July 15**.

Consistency

Not applicable as it is unlikely that ponderosa pine trees would be removed as part of hazard or danger tree removal with this project.

Determination/Conclusion

Implementation of the Greater Suttle Lake Vegetation Management Project is not expected to remove potential nest trees (ponderosa pine), but could remove trees adjacent to them which would cause disturbance during the nesting season. Activities that would occur adjacent to active nests (April 15 – July 15) could have a negative impact to nesting white-headed woodpeckers. Therefore, this project, based on the above described impacts, and that this species is considered Imperiled (S2B) by NatureServe (2019), m***ay impact individuals or habitat, but would not likely contribute to a trend toward federal listing for the white-headed woodpecker.***

Because this project impacts <0.1% of suitable habitat on the Forest and may occur during the nesting season, the overall direct, indirect and cumulative impacts would result in a small negative trend of habitat and increased disturbance. This loss of habitat and increased disturbance would be insignificant at

the scale of the Forest. The Greater Suttle Lake Vegetation Management Project is consistent with the Forest Plan (by incorporating project design criteria for protection during the nesting season), thus continued viability of the white-headed woodpecker is expected on the Deschutes National Forest.

BAT SPECIES

Measure: Roosting and foraging habitat impacted, disturbance while roosting.

The LRMP calls for retaining snags, decadent trees, and green tree recruitment. Snag densities are poorly known for most species of bats but some research indicates that snag density requirements may be higher than those needed for woodpeckers (Lacki et al. 2007). Bat species that roost in snags or trees often need abundant large trees and snags >21 inches dbh (those that provide sloughing bark and large chambers inside for roosts) because they will often change individual roost sites but remain in a particular area (Ormsbee and McComb 1998). Adequate numbers of large snags and green trees are especially critical for bats because these trees are used for maternity roosts, temporary night roosts, day roosts, and hibernacula. These should be in adequate numbers because bats compete with primary excavators and other species that use cavities (NWFP 1994). Day and night roosts are often located at different sites, and migrating bats may roost under bark in small groups. Thermal stability within a roost site is important for bats, and large snags and green trees provide that stability. Individual bat colonies may use several roosts during a season as temperature and weather conditions change (NWFP 1994). Bats frequently switch roosts to escape predation and avoid parasites (Lewis 1994). Large, down logs with loose bark may also be used by some bats for roosting.

A variety of bat species will forage and hunt over open areas and this is not seen as limiting within the project area.

Three sensitive bat species have the potential to utilize snags and diseased trees within the project area for roosting.

FRINGED MYOTIS, *Myotis thysanodes*
FS SENSITIVE

Habitat Needs and Existing Condition

The fringed myotis is distributed patchily throughout the western U.S. It occurs from sea level up to 9,400 feet but is detected most often at elevations of 3,960 to 6,900 feet (Western Bat Working Group 2005a). It is most common in oak, pinyon-juniper, and ponderosa pine but can also be found in desert scrub, mesic coniferous forest, grassland, and sage-grass steppe (Western Bat Working Group 2005a). Summer roosts have been documented in rock crevices (Lacki and Baker 2007), human structures, and trees/snags (Chung-MacCoubrey 1996, Rabe et al. 1998, Weller and Zabel 2001). It is likely that structural characteristics (e.g. height, decay stage) rather than tree species play a greater role in selection of a snag or tree as a roost (Western Bat Working Group 2005a). It is also known to roost in buildings, mines and caves, cliff faces, and bridges (Western Bat Working Group 2005a). Like many bat species, the fringed myotis is adapted for foraging along forest edges (Western Bat Working Group 2005a).

Potential threats include disturbance at roost sites, loss or modification of roosting snag habitat, disturbance from recreational caving and mine exploration, replacement of buildings and bridges with

non- bat friendly structures, loss of clean, open water, and loss of prey species due to pesticides/chemicals.

No winter hibernation records of the fringed myotis occur on the Deschutes National Forest. One summer capture in a mist-net was recorded at a cave on the Bend-Ft. Rock Ranger District in 1992. The fringed myotis can be confused morphologically with the long-eared myotis (*Myotis evotis*), one of the more common bat species in Central Oregon, which may contribute to misidentification in the field. Large dead and diseased trees within the project area plus the buildings provide potential roosting habitat for this bat species.

PALLID BAT, *Antrozous pallidus*
FS SENSITIVE

Habitat Needs and Existing Condition

Pallid bats day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, trees (*e.g.*, basal hollows of coast redwoods and giant sequoias, bole cavities of oaks, exfoliating ponderosa pine and valley oak bark, deciduous trees in riparian areas, and fruit trees in orchards), and various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings (Western Bat Working Group 2005b). Roosts generally have unobstructed entrances/exits, and are high above the ground, warm, and inaccessible to terrestrial predators (Western Bat Working Group 2005b). Although year-to-year and night-to-night roost reuse is common, they may switch day roosts on a daily (1 to 13 days) and seasonal basis (Western Bat Working Group 2005b).

Recent research in northern California in the Plumas National Forest showed that pallid bats used cavities in large diameter trees and snags (>21 inches dbh) in mixed coniferous forests at elevations greater than 3,800 feet (Baker et al. 2008), suggesting that they switch to non-rock crevices when in coniferous forests. The diet of pallid bats is varied including such insect taxa as beetles, centipedes, crickets, moths, scorpions, and termites.

The pallid bat been documented on the Deschutes National Forest on the Sisters Ranger District and on adjacent Bureau of Land Management lands in the southeastern corner of the Bend-Ft. Rock Ranger District.

Large dead and diseased trees within the project area plus the buildings provide potential roosting habitat for this bat species.

TOWNSEND'S BIG-EARED BAT, *Corynorhinus townsendii*
FS SENSITIVE, MIS

Habitat Needs and Existing Condition

The Townsend's big-eared bat is a Regional Forester Sensitive Species and a Forest Plan Management Indicator Species. The following information is summarized from the 2012 forest wide habitat assessment for the Townsend's big-eared bat (USDA FS 2012v). This species is dependent on cave or cave-like structures (buildings) year-round in mixed conifer forests, deserts, and agricultural areas. Foraging associations include edge habitats along streams and in forested habitats, particularly in sagebrush steppe and open ponderosa pine stands.

There are no known caves within the project area. Possible roosting habitat occurs within large trees and snags within the project area and buildings, plus foraging habitat can be found throughout the project area. Foraging habitat would be the forested portions of the project area, with the quality of this habitat varying, depending upon stand conditions and densities.

Environmental Consequences

All of these bat species are considered "imperiled" by NatureServe (2019). Because of this ranking and the listing of these species as sensitive, it is important to consider the necessary habitat constituents (snags and decaying live trees) and protect them as much as possible.

Direct and Indirect Impacts

The proposed project would be removing dead and diseased trees on 249 acres that would afford suitable roosting habitat for these bat species. The loss of large dead and diseased trees would have long-term impacts within the project area to bats and their habitat.

Felling of trees during the summer roosting and reproductive period (April through September) in the project area including felling of danger and hazard trees could result in direct impacts to individuals (particularly non-mobile pups) roosting in snags and diseased live trees. Disturbance from project operations within and adjacent to the project units (piling and burning and placement of large trees in Link Creek) could result in short-term displacement or abandonment of female adults from maternity roost sites during this time period which may indirectly result in mortality to pups that are not yet volant (mobile). Pups would be more mobile and able to escape felling operations later in the summer and fall.

Winter hibernation sites are not known to occur in the project area; therefore, there are no anticipated impacts to bats during winter operations.

Changes in forest structure are not expected to result in unsuitable conditions for foraging as prey availability and foraging opportunities would still be abundant after project implementation. Operations are not anticipated to disturb foraging behavior as bats forage outside of typical operating times.

Mowing would have a short-term impact on bat foraging habitat due to the reduction in shrub cover, thereby reducing the insect prey base. The shrub removal would be minor (approximately 24 acres) and only adjacent to the roads within the project area. Shrub habitat is abundant outside these areas.

Transplanting shrubs and seeding for grasses and forbs would benefit bat prey species habitat.

Other aspects of the project including planting, boraxing cut trees, and the Camp Tamarack power line burial would have negligible impacts to bats.

Cumulative Impacts

This project would add incrementally to reasonably foreseeable actions of removal of potential roost trees. Future danger and hazard tree removal would continue to occur within and adjacent to the project area as trees continue to succumb to the diseases that have prompted this project. The removal would not be at the levels as this project, but would be an occasional tree. Therefore, cumulative impacts are expected to the bats from this project, but the degree of impact would be immeasurable as the amount of

trees and where they are is not known at this time. There are still areas within the project area that are not being treated where potential roost trees occur as well as in adjacent stands.

Project Design Criteria/Mitigation Measures

● To minimize disturbance and direct impacts to bat species that could be roosting in large trees within the project area, limit the amount of tree removal, pre-commercial thinning, piling and burning to the extent feasible during the time from **April 15 to October 1.**

Consistency

Not applicable. Forest Plan Standards and Guides for Townsend's big-eared bats focuses on caves.

Determination/Conclusion

Implementation of the Greater Suttle Lake Vegetation Management Project would remove potential roost trees across the entire project area (249 acres). Tree removal between April 15 and October 1 could directly impact roosting bats. Therefore, this project, based on the above described impacts, and that these bat species are considered Imperiled (S2B) by NatureServe (2019), the project ***may impact individuals or habitat, but would not likely contribute to a trend toward federal listing for the fringed bat, pallid bat, and Townsend's big-eared bat. .***

For the Townsend's big-eared bat (also an MIS species), since this project impacts <1% of suitable roosting habitat on the Forest and that the project may occur while bats are roosting in the trees, the overall direct, indirect and cumulative impacts would result in a small negative trend of habitat and increased disturbance. This loss of habitat and increased disturbance would be insignificant at the scale of the Forest. The Greater Suttle Lake Vegetation Management Project is consistent with the Forest Plan, thus continued viability of the Townsend's big-eared bat is expected on the Deschutes National Forest.

MOLLUSK SPECIES

Measure: Acres of habitat impacted

CRATER LAKE TIGHTCOIL, *Pristiloma articum crateris*
FS SENSITIVE

Habitat Needs and Existing Condition

This snail can be found in suitable wet habitat on the undersides of woody debris, among wet mosses, rushes, and other low vegetation at the edges of wetlands, springs, seeps, and streams in perennially damp forest floor litter, especially where it has accumulated at the bases of shrubs and against logs (Duncan et al. 2003). Suitable wet habitat would be considered as almost exclusively very stable, perennially wet riparian edges around wetlands, springs, seeps, streams, and damp forest floor. Areas that are temporarily wet habitat such as stream borders that may change location (up and down the stream bank) or are seasonally under water, are not suitable habitat for this species. Only areas with constant water levels that create perennially saturated habitat year-round are suitable and may be occupied.

There is approximately 1.6 acres of potential mollusk habitat within the project area (wetland habitat with hardwoods) that could be impacted with hazard tree removal and placement of woody material into Link Creek. Surveys have not been conducted to date within the project area, so it is unknown which species of mollusk may occur.

SHINY TIGHTCOIL, *Pristiloma wascoense*
FS SENSITIVE

Habitat Needs and Existing Condition

Most sites for this species are in ponderosa pine and Douglas fir forests at moderate to high elevations (Frest and Johannes 1995). The eastern Washington record is from a relatively moist, shaded basalt cliff and with talus and *Populus* cover (Frest and Johannes 1995). Burke and Leonard (2009, *draft*) describe the habitat as primarily under deciduous trees, particularly quaking aspen and red alders. Found under woody debris and rocks, in leaf and needle litter and duff (Jordan 2010).

There is approximately 1.6 acres of potential mollusk habitat (wetland habitat with hardwoods) within the project area that could be impacted with hazard tree removal and placement of woody material into Link Creek. Surveys have not been conducted to date within the project area, so it is unknown which species of mollusk may occur.

DALLES HESPERIAN, *Vespericola depressa*
FS SENSITIVE

Habitat Needs and Existing Condition

This species typically prefers undisturbed mixed forest types, moist microclimates, the presence of exchangeable calcium ions in the soil, deep leaf-litter, and downed logs. Because of this species' rarity and limited documentation, conclusions about habitat associations are limited. This species is associated with generally wet or very moist sites (e.g., riparian forests, spring and seep borders, near the bottom of a slope, moist valley, ravine, or gorge) (Frest and Johannes 1995). In dry areas, association with a permanent water source such as a spring or seep is likely. It has been collected from under bark and larger pieces of coarse woody debris. This species prefers dense understory and has been found at sites where vine maple and buck brush represent the dominant understory vegetation.

There is approximately 1.6 acres of potential mollusk habitat (wetland habitat with hardwoods) within the project area that could be impacted with hazard tree removal and placement of woody material into Link Creek. Surveys have not been conducted to date within the project area, so it is unknown which species of mollusk may occur.

Environmental Consequences

Direct and Indirect Impacts

Activities, including logging activities and heavy equipment operation that compact soils or snow, disturb ground vegetation and/or litter, remove woody debris, alter temperature and/or humidity of the microsite, reduce canopy cover, or alter the water table could be deleterious to the habitat of *Pristiloma and Vespericola* species (Gowan and Burke 1999).

Approximately 1.6 acres of mollusk habitat could be impacted by this project with the above potential habitat impacts. Impacts to riparian vegetation and wetland habitat is expected to be short-term from the proposed actions of this project as riparian vegetation can recover as well as the disturbance to ground vegetation and changes in the microsite. Felling and removal of dead and diseased trees within the wetland areas could crush any of these mollusk species that may be present. Falling and leaving trees could also crush any mollusk species that occur, but would also create down wood habitat that can be utilized as microclimate.

Other aspects of the project including planting, transplanting, seeding, boraxing cut trees, and the Camp Tamarack power line burial would have negligible impacts to mollusk species as these would occur outside of suitable habitat.

Cumulative Impacts

The impacts to mollusk habitat from this project will add incrementally to ongoing and reasonably foreseeable actions. Large tree placement would occur within Link Creek in the near future. There could be 10-20 trees placed within Link Creek from where it enters Suttle Lake to the Forest boundary, potentially impacting up to an additional 0.13 acres of habitat.

Project Design Criteria/Mitigation Measures

●To minimize disturbance of habitat and direct loss of mollusk species, no equipment would be allowed directly within suitable habitat (Link Creek Campground). If this cannot be avoided, conduct the activity when the ground is frozen.

Consistency

N/A

Determination/Conclusion

Implementation of the Greater Suttle Lake Vegetation Management Project would potentially impact 1.6 acres of mollusk habitat adjacent to Suttle Lake. Removing hazard trees could alter the microclimate of the site negatively impacting mollusks that may occur and cutting and leaving trees could potentially crush them. Therefore, this project, based on the above described impacts, and that these mollusk species are considered Imperiled (S2) by NatureServe (2019), m***ay impact individuals or habitat, but would not likely contribute to a trend toward federal listing for the Crater Lake tightcoil, evening fieldslug, and the Dalles hesperian.***

WESTERN BUMBLE BEE, *Bombus occidentalis*
MORRISON'S BUMBLE BEE, *Bombus morrisoni*
SUCKLEY'S CUCKOO BUMBLE BEE, *Bombus suckleyi*
FS SENSITIVE

Measure: Acres of nesting and foraging habitat impacted

Habitat Needs and Existing Condition

These bumble bee species occur broadly across western North America from Alaska to central California using a variety of natural, agricultural, urban and rural habitats with abundant floral resources. They require suitable nesting and overwintering structure, such as rodent burrows, downed wood or bunchgrass. They are generalist foragers, but require sources of pollen/nectar spring thru fall. Suckley's bumble bee is a cuckoo bumble bee species that are nest parasites of other species of bumble bees. It has been detected in the nests of several species, but it has only ever been observed reproducing in nests of the western bumble bee.

Habitat alterations including those that could destroy, fragment, alter, degrade or reduce the food supply produced by flowers, as well as destruction of nest sites and hibernation sites for overwintering queens, such as abandoned rodent burrows and bird nests, adversely affect these bees. Other threats include pesticide use, pathogens from commercial honey bees, competition with non-native bees, and climate change. Population trends are declining, especially at the edges of its known range (Jepsen 2014).

The western bumble bee has been observed at several sites on the Deschutes National Forest. Local observations have been as recent as 2014 within meadows in the areas of Sunriver, Sparks Lake, Todd Lake, Green Lakes, and Canyon Creek Meadow (on the Sisters Ranger District). There are no confirmed documentations of Morrison's bumble bee or Suckley's bumble bee. Although the western bumble bee has been observed on the District, there is currently no District or Forest data to determine acres of suitable habitat. For purposes of this document, it is assumed that potential habitat could occur anywhere within the project area. These species need a constant supply of flowers in bloom from spring to autumn. Since there are flowering plants within the project area from spring through fall (for a complete list of flowering plants within the project area, see the Botany Report), it is assumed that it may potentially provide both nest sites and hibernation sites for these bumble bees.

Environmental Consequences

Direct/Indirect Impacts

Activities such as hazard/danger/tree removal, would reduce foraging potential for the bumble bee species across the 249 acres. Large machinery could crush flowering plants and remove some sources of pollen and nectar for the bumble bees. Impacts related to loss of foraging habitat would be short-term. Potential loss of nesting or over-wintering queens could occur by use of heavy machinery in the stands and with power line burial at Camp Tamarack. This impact would be longer term (but still less than 20 years) to bumble bee populations as it would be a loss of a queen or a whole colony

Other aspects of the project including planting, transplanting, seeding, and boraxing cut trees would have negligible impacts to bumble bee individuals.

Cumulative Impacts

This project would not add incrementally to ongoing and reasonably foreseeable actions within or adjacent to the project area or within the subwatershed for loss of bumble bee nesting and foraging habitat. Future dead and diseased trees would be removed in the area as they occur, but these would be removed by hand and not heavy machinery. Thus, there would be no cumulative impacts from the Greater Suttle Lake Vegetation Management Project to the listed bumble bee species.

Project Design Criteria/Mitigation Measures

N/A

Consistency

N/A

Determination/Conclusion

Implementation of the Greater Suttle Lake Vegetation Management Project would potentially disturb or crush nesting bees and overwintering queens while reducing potential pollen and nectar sources in the project area. Impacts to foraging habitat and populations would be short-term, although loss of a queen or a whole colony would reduce bee populations in the project area. Therefore, this project, based on the above described impacts, this species is considered Imperiled (S2) to critically imperiled (S1) by NatureServe (2019), and that the project acres impacted is small, the project **m*ay impact individuals or habitat, but would not likely contribute to a trend toward federal listing*** for the western bumble bee, Morrison's bumble bee, and Suckley's cuckoo bumble bee.

WILDLIFE REPORT

This wildlife report analyzes impacts to Deschutes National Forest Land and Resource Management Plan (LRMP) management indicator species (MIS) and special or unique habitats. In addition, there is a number of other wildlife species or habitats that require analysis through directives (examples include Northwest Forest Plan, Birds of Conservation Concern, and Focal Landbird Species).

SPECIES INFORMATION & EFFECTS ANALYSIS

Analysis Summary

Table 9 is a summary of the findings of this Wildlife Report on the effects/impacts of the proposed action.

Table 9. Summary of Effects/Impacts to Species Addressed in the Wildlife Report from the Proposed Action.

SPECIES	PROPOSED ACTION EFFECT
Management Indicator Species	
Northern spotted owl	Small negative impact
Northern bald eagle	Small negative impact
American peregrine falcon	Small negative impact
Northern goshawk	No impact
Cooper's hawk	No impact
Sharp-shinned hawk	No impact
Great gray owl	Small negative impact
Great blue heron	Small negative impact
Golden eagle	No impact
Waterfowl	Small negative impact
Woodpeckers	Small negative impact
Red-tailed hawk	Small negative impact
Osprey	Small negative impact
North American wolverine	No impact
American marten	No impact
Elk	No impact
Mule deer	No impact
Townsend's big-eared bat	Small negative impact
Snags/down wood	Decrease in habitat
Survey and Manage Species	
Great gray owl	Small negative impact
Crater Lake tightcoil	Small negative impact
Evening field slug	Small negative impact
Birds of Conservation Concern and Landbird Focal Species	
Northern bald eagle	Habitat decreased
Brown creeper	Habitat decreased
Flammulated owl	Habitat decreased
Hermit Thrush	Habitat decreased
Lewis' woodpecker	No change
Olive-sided flycatcher	Habitat increased
White-headed woodpecker	Habitat decreased
Williamson's sapsucker	Habitat decreased

Management Indicator Species

The Deschutes National Forest Land and Resource Management Plan (LRMP) (USDA 1990) identified a group of wildlife species as management indicator species (MIS). These species were selected because they represent other species with similar habitat requirements. Management indicator species can be used to assess the impacts of management activities for a wide range of wildlife species with similar habitat needs (FSM 2620.5).

A Forest wide assessment for each Management Indicator Species (MIS) was completed in 2012 for the entire Deschutes National Forest (NF) (USFS 2012). Where USFS 2012 is cited, they reference those individual documents associated with each species. Suitable habitat for each species was defined as habitat that could potentially be utilized for reproduction. An exception to this is associated with species specific standards and guidelines within the Deschutes LRMP, not associated with reproductive habitat, although essential to the viability of that species population within its range. For example, cover standards and guidelines for mule deer winter range. An assessment was completed for each species based on the amount of potentially suitable habitat that occurs across the Deschutes NF, associated threats, and population trend data where it was available. The assessment used the best available science and guidance such as research found in books, scientific journals, and scientific websites. NatureServe, an international non-profit conservation organization whose mission is to provide the scientific basis for effective conservation action was a major contributor to population trend data. NatureServe and its network of natural heritage programs, including Oregon State Heritage Program, are the leading source for information about rare and endangered species and threatened ecosystems. Their website, http://www.natureserve.org/, compiles historic and current information from The Nature Conservancy and other conservation groups, U.S. government agencies, private sector partnerships, international agencies, and data cooperators. In addition, for those MIS species which are also hunted or furbearing species (e.g. big game, waterfowl, and American marten), Oregon Department of Fish and Wildlife provided population trend data for big game, data relative to trapping for marten, and monitoring data for waterfowl. Habitat definitions were developed and modeled for each MIS species. Information from the species assessments formed the baseline for species habitat across the Deschutes National Forest. The Greater Suttle Lake Vegetation Management Project analysis tiers to those assessments.

A preliminary analysis was conducted for each potentially affected MIS species and their habitat to determine the scope of project analysis. Species that do not have suitable habitat or are not regularly present or expected to be in or near the proposed activity area, or species that are affected at a level that does not increase risk to the species or impacts have been adequately mitigated by altering the design of the project are not analyzed in detail. MIS species that have the potential to be affected by the project are analyzed in detail. See Table 10 for the MIS species that occur on the Deschutes National Forest.

Table 10. Deschutes National Forest Management Indicator Species.

Deschutes National Forest Management Indicator Species				
Species	**Status & NatureServe Ranking**	**Habitat**	**Habitat/ Presence in Project Area**	**Effect**
MIS BIRDS				
Northern spotted owl* (*Strix occidentalis caurina*)	**T, MIS S2 Imperiled**	**Old growth mixed conifer forests**	**Dispersal habitat within the project area.**	**No Effect to NRF, reduction in dispersal and connectivity.**
Northern bald eagle* *Haliaeetus leucocephalus*	**S, MIS,**	**Lakeside or riverside with large trees**	**BEMA, nesting and roosting habitat adjacent to the lake.**	**Loss of nesting and roosting habitat; potential disturbance**

Deschutes National Forest Management Indicator Species				
Species	**Status & NatureServe Ranking**	**Habitat**	**Habitat/ Presence in Project Area**	**Effect**
	T5 Secure – state status not available			**or loss of individuals during the nesting season.**
American peregrine falcon* *Falco peregrinus anatum*	S, MIS S2B Imperiled (Breeding)	Riparian & cliff habitats	No habitat within the project area	No Effect
Northern goshawk *Accipiter gentiles*	**MIS S3S4 Vulnerable/ Apparently Secure**	**Mature & old growth forest**	**40 acres of mapped nesting habitat within the project area.**	**Loss/degradation of nesting habitat; potential disturbance or loss of individuals during the nesting season.**
Cooper's hawk *Accipiter cooperi*	MIS S4 Apparently Secure	Forest with high canopy closure & density	No habitat within the project area	No effect
Sharp-shinned hawk *Accipiter striatus*	MIS S4 Apparently Secure	Forest, variety of conditions suitable	No habitat within the project area	No effect
Great gray owl *Strix nebulosi*	**MIS, S&M, S3 Vulnerable**	**Mature & old growth forest with openings & meadows**	**Nesting and foraging habitat (35 acres). No sightings or active nests have been found to date.**	**Loss of nesting habitat; potential disturbance or loss of individuals during the nesting season.**
Great blue heron *Ardea herodias*	**MIS S4 Apparently Secure**	**Riparian edge – lakes, streams and marshes**	**Great blue herons have been seen foraging at Suttle Lake. Potential nesting habitat, but the lake is surrounded by recreational facilities, FS roads, and the highway.**	**Loss of nesting habitat; potential disturbance or loss of individuals during the nesting season.**
Golden eagle *Aquila chrysaetos*	MIS S3 Vulnerable	Large open areas with cliffs/outcrops	No habitat within the project area	No Effect
Waterfowl (See Appendix B)	**MIS**	**Riparian edge, marshes, lakes, ponds & rivers**	**Nesting habitat occurs for ground and cavity nesting waterfowl.**	**Loss of nesting habitat; potential disturbance or loss of individuals during the nesting season.**
Woodpeckers Lewis' woodpecker and white-headed woodpecker are analyzed within the BE.	**S (2 species) MIS**	**Variety of forest types with snags**	**Nesting and foraging habitat. Many listed have been sighted within the project area.**	**Loss of nesting and foraging habitat; potential disturbance or loss of individuals during the nesting season.**
Red-tailed hawk *Buteo jamaicensis*	**MIS S5 Secure**	**Open country with forest edge**	**Nesting and foraging habitat (226 acres)**	**Loss of nesting habitat; potential disturbance or loss of individuals**

Deschutes National Forest Management Indicator Species				
Species	**Status & NatureServe Ranking**	**Habitat**	**Habitat/ Presence in Project Area**	**Effect**
				during the nesting season.
Osprey ***Pandion haliaetus***	**MIS S4 Apparently Secure**	**Large snags near fish bearing water bodies**	**Nesting and foraging habitat (249 acres)**	**Loss of nesting habitat; potential disturbance or loss of individuals during the nesting season.**
North American wolverine* *Gulo gulo*	P, MIS S1 Critically Imperiled	High elevation mixed conifer forest	Denning habitat does not occur within the project area.	No Effect
MIS MAMMALS				
American marten ***Martes americana***	**MIS S3 Vulnerable**	**Mixed conifer or high elevation late successional forest with down wood**	Denning habitat does not occur within the project area. The area is surrounded by campgrounds, organizational camps and roads.	No Effect
Elk ***Cervus elephas***	**MIS S5 Secure**	**Mixed habitats**	**Summer range habitat**	**Short-term disturbance and displacement during project activities.**
Mule deer ***Odocoileus hemionus***	**MIS S5 Secure**	**Mixed habitats**	**Summer range habitat**	**Short-term disturbance and displacement during project activities.**
Townsend's big-eared bat* ***Corynorhinus townsendii***	**S, MIS S2 Imperiled**	**Caves, mines, bridges, rock crevices and old buildings**	**Roosting and foraging habitat**	**Loss of roosting habitat. Potential disturbance or loss of roosting individuals while logging, pre-commercial thinning, piling, burning or powerline burial**
MIS OTHER				
Snag and down wood habitat		**Snag and down wood**	**Snags and down wood occur across the project area due to the high concentration of diseased trees in the area.**	**Loss of current and future snags and down wood during project implementation.**

*Species also analyzed as federally listed or sensitive and discussed in the project BE.

Some MIS species have been discussed in the Threatened, Endangered, or Sensitive (TES) Species section of this report. These include the northern spotted owl, northern bald eagle, bufflehead, Lewis' woodpecker, white-headed woodpecker, and Townsend's big-eared bat.

NORTHERN GOSHAWK, *Accipiter gentiles*
MIS

Measures: Effects to nesting and foraging habitat and disturbance effects.

Habitat Needs and Existing Condition

The northern goshawk is the largest member of the accipiter family and is distributed across most of Canada, the northern and western United States, and into Mexico. Reynolds et al. (1978) located goshawk nests in Oregon from 580 meters elevation on the west slopes of the Cascades to 1,860 meters (1,903 feet to 6,102 feet). Reynolds et al. (1992) stated preferred nest stands have a minimum of 40 percent canopy cover and the nest sites within these stands have greater than 60 percent canopy cover. Greenwald et al. (2005) reviewed goshawk nesting data and found that a majority of studies found a selection for stands with greater than 40 percent canopy as suitable goshawk nesting habitat. Vegetation plot data collected from Deschutes National Forest goshawk nest sites showed canopy cover ranging from 49-94 percent (USDA 1993). For these reasons, nesting habitat is thought to be the limiting factor when looking for habitat. Foraging areas are typically 4,900-5,900 acres, comprised of a forest mosaic that must support a wide range of suitable prey including ground dwellers or those occurring near the forest floor (e.g. ground squirrels, birds, small mammals (Marshall et al. 2003).

From Wisdom et al. (2000) "Goshawks nest in various forest structural conditions …nest stands are generally characterized by large trees and the densest canopy cover available within the area (Reynolds et al. 1992 *in* USDA FS 2012n) but are occasionally located in small-diameter trees (Hayward and Escano 1989 and Squires and Ruggiero 1996 *in* USDA FS 2012n)." Foraging occurs in various cover types and structural stages, and the juxtaposition of several habitats may enhance the quality of foraging habitat around nest sites (USDA FS 2012n).

In general, goshawk nest areas are unique in structure, with large trees, dense canopies, and high canopy closure. Goshawk nesting habitat in eastern Washington and Oregon is generally composed of mature and older forests. Nest stands are typically composed of a relatively high number of large trees, high canopy closure (>50%), multiple canopy layers, and a relatively high number of snags and downed wood (USDA FS 2012n).

Habitat alteration, and threats from disturbance due to logging activities conducted near nests during the incubation and nestling periods can cause nest failure due to abandonment. Also, high road densities may result in loss of snag and down wood habitat important to goshawk prey (USDA FS 2012n).

For a detailed assessment of the northern goshawk on the Deschutes National Forest, see the Forest-wide Species Assessment (USDA FS 2012n). Through the Forest-wide assessment completed for MIS, goshawk reproductive habitat was mapped across the entire Deschutes National Forest. Table 11 summarizes this data. Some of these acres may not be currently meeting the definition of nesting habitat for goshawk because of insect mortality, disease (root rot), and several small wildfires within the watersheds. However, this acreage may still serve as post-fledging and/or foraging habitat.

Table 11. Northern Goshawk Reproductive Habitat within the Greater Suttle Lake Vegetation Management Project Area, Lower Lake Creek Subwatershed, and Upper Metolius River Watershed, and across the Deschutes National Forest.

Acres of Goshawk Habitat in the Project Area	Acres of Goshawk Habitat in the Lower Lake Creek Subwatershed	Acres of Goshawk Habitat in the Upper Metolius Watershed	Acres of Goshawk Habitat on the Forest
40	1.298	27,211	428, 556 acres
0.01% of all northern goshawk habitat on the Forest.	0.3% of all northern goshawk habitat on the Forest	6% of all northern goshawk habitat on the Forest	26% of the entire Forest

Approximately 40 acres of mapped goshawk reproductive habitat exists within the project area, which is 18% of the total project acres. Within the subwatershed and watershed, approximately 1,298 acres occurs within the Lower Lake Creek Subwatershed and 27,211 acres within the Upper Metolius River Watershed. Across the Deschutes National forest, approximately 428,556 acres of reproductive habitat occurs.

There are no current or historical sightings or nests of northern goshawks within or adjacent to the project area.

Environmental Consequences

Direct and Indirect Impacts

The project would impact 18 acres of habitat by hazard/danger tree removal and pre-commercial thinning, approximately 16 acres within the campground and organizational camps and 2 acres along the roads. The acres of habitat that occur within the project area would most likely not be used by goshawks for nesting due to the amount of human disturbance that occurs. The 18 acres of habitat that would be treated may no longer provide suitable nesting habitat, but would still provide foraging habitat.

It is possible that if the project occurs during the breeding season (March 1 – August 31), hazard and danger tree removal, pre-commercial thinning and fuels projects (piling/burning) could have direct, negative impacts to nesting goshawks that may be within or adjacent to active units. Disturbance during this time could result in nest failure (noise disturbance) or direct loss of individuals (from tree removal or adults away from the nest for too long).

Other activities associated with this project including planting, transplanting, seeding, boraxing and the Camp Tamarack power line burial would likely have negligible disturbance impacts to individuals. It is the overstory treatments that have the larger impact (deteriorating or removing habitat).

Cumulative Effects

This project would add incrementally to reasonably foreseeable actions of removal of potential habitat. Danger tree removal along Highway 20 as well as future danger and hazard tree removal within and adjacent to the project area would occur as trees continue to succumb to the diseases that have prompted this project. The removal would not be at the levels as this project, but would be an occasional tree. Therefore, cumulative impacts are expected to the northern goshawk from this project, but the degree of impact would be immeasurable as the amount of trees and where they are is not known at this time.

There are still areas within and adjacent to the project area as well as within the subwatershed that are not being treated where habitat occurs.

Project Design Criteria/Mitigation Measures

To prevent disturbance of and/or loss of nesting northern goshawks and their habitat during breeding season

●No disturbing activities (hazard tree removal, thinning, mowing/mastication, burning, habitat improvement, etc.) within ¼ mile and/or line of sight from any newly discovered nest is found during implementation of this project from March 1 – August 31 (WL-11).

●The project wildlife biologist or Sisters District wildlife biologist would be contacted immediately if new, active raptor nests are discovered or raptors are sighted exhibiting territorial behavior during layout, implementation, or post-sale activities. All activities would cease for a radius of at least 375 feet around the nest site until a biologist evaluates the nest site. Appropriate restrictions would be applied before activities are permitted to continue. Core areas would be established around the new site if it were located. Core areas may be located both inside and outside of treatment unit boundaries.

Consistency

Wildlife standards and guidelines WL-6, WL-10, and WL-11 will be assessed (Table 12). This project would be consistent with the Forest Plan by adhering to the following Standards and Guidelines:

Table 12. Standards and Guides for Northern Goshawk from the Forest Plan.

Standard and Guideline	Does Not Meet, Meets, Applicable, Not Applicable	Rationale
WL-6 – Nesting habitat for at least 40 goshawk pairs will be provided in mixed conifer, mtn. hemlock, and ponderosa pine forests outside wilderness.	Applicable	Habitat is available across the Forest.
WL-10 – Locating new roads within nest site stands will be avoided.	Not applicable	No new road construction is proposed for this project; Temp roads should not be placed within suitable goshawk habitat or other stands that would not be treated; re-opened roads and temp roads if needed will be closed.
WL-11 – Nests will be protected within ¼ mile from disturbing activities from March 1 – August 31.	Applicable if a nest is found	Project Design Criteria include a seasonal restriction in the event a new nest site is found.

This is written into this document as a Project Design Criteria and will further be addressed within the projects implementation plan.

Determination/Conclusion

It is expected that nesting habitat would be degraded or removed by the proposed treatments from this project. Although nesting habitat would be degraded or removed, the amount would be minor compared to that available within the subwatershed (impacting 1%), watershed (impacting 0.1%) and Forest (impacting 0.004%). The habitat that occurs within the project area is not considered high quality due to the amount of recreation and disturbance that occurs. Based on these impacts and that this species is ranked Vulnerable to Apparently Secure (S3S4) by NatureServe (2019), the Greater Suttle Lake Vegetation Management Project is expected to have **a small negative impact to the northern goshawk and its habitat.** Because this project impacts a minimal amount of suitable northern goshawk habitat across the Forest and that this project could occur during the nesting season, the overall direct, and indirect impacts would result in a **small negative trend of habitat and increased disturbance**. This loss of habitat and increased disturbance would be insignificant at the scale of the Forest. The Greater Suttle Lake Vegetation Management Project is consistent with the Forest Plan, and **thus continued viability of the northern goshawk is expected on the Deschutes National Forest.**

GREAT GRAY OWL, *Strix nebulosi*
MIS, S&M

Measures: Effects to nesting habitat and disturbance effects.

Habitat Needs and Existing Condition

The great gray owl is an indicator species for other edge species that prefer habitat in mature to old growth coniferous and mixed conifer/lodgepole pine forests adjacent to openings in forests, usually meadows. This species is associated with mature stands of mixed conifer/lodgepole pine/mountain hemlock near meadow complexes. Great gray owls do not build their own nests, but rely mainly on other raptor or raven nests, mistletoe platforms, broken topped snags, or artificial nest platforms. Bull and Henjum's (1990) study in northeast Oregon found that great gray owls tended to nest in unlogged, mature or older stands with an open understory and dense overstory. However, the amount of canopy cover in a nest stand varies between studies from 11 percent to 75 percent (Bull and Henjum 1990; Bryan and Forsman 1987).

Great gray owls forage primarily in open habitats. Suitable foraging habitats include natural meadows, open forest stands, early successional forests, recent clearcuts, montane meadows, grassy habitats, bogs, fens, muskegs, and peatlands (Nero 1980; Winter 1986; Bryan and Forsman 1987; Stepnisky 1997). Foraging habitat is typically defined as natural meadows greater than 10 acres in size, riparian areas, and clear-cut or selectively logged areas where they forage on voles, pocket gophers, shrews, chipmunks, squirrels, and snowshoe hares. In Oregon, great gray owls select montane meadows, as well as open stands of mature forest with grass as the dominant ground cover, as preferred hunting areas (Winter 1986; Bryan and Forsman 1987). Old growth and late successional forests, as well as selectively logged and clearcut forests, are used for foraging, but not as often as natural forest openings (Nero 1980; Mikkola 1983; Winter 1986; Goggans and Platt 1992). The Greater Suttle Lake Vegetation Management Project area has openings created by the B&B wildfire from 2003 that great gray owls could potentially use for foraging. Although, since these fires, much of the open ground is covered with shrubs now. Additionally, down wood and snags seem to be important components of foraging habitat. In northeastern Oregon, downed wood was found within three feet (one meter) of where prey was caught or attempted to be caught 80 percent of the time (Bull and Henjum 1990). Snags are used for nesting, as perches while foraging, and by juveniles for climbing (Schaeffer 1993). While hunting, great gray owls

perch in both live trees and in snags adjacent to open areas. Home ranges for breeding adults in northeastern Oregon averaged 1,112 acres, ranging from 324 acres to 1,606 acres. However, they have been observed foraging up to two miles from the nest (Bull and Henjum 1990).

For the detailed assessment on the great gray owl for the Deschutes National Forest, see the Forest-wide Species Assessment (USFS 2012i).

Great gray owl (GGO) nest stands vary in stand type ranging from mixed stands of ponderosa pine and lodgepole pine to mixed conifer. Within these stands, optimum nesting habitat canopy cover ranges from 50-70%. Nest stands are generally associated with open forest containing canopy closure that ranges from 11-59% dominated with grasses, open grassy habitat, including bogs, selective and clear-cut logged areas, and natural meadows (Bull and Henjum 1990). The LRMP defines this owl's habitat as being: lodgepole pine dominated overstory, overstory tree density of 67 trees per acre for trees greater than 12 inches diameter at breast height, canopy cover of 60% (50-70%), and distance to nearest meadow 440 (63-1,070ft.) feet (LRMP WL-31).

The NWFP states "the great gray owl, within the range of the northern spotted owl, is most common in lodgepole pine forests adjacent to meadows. However, it is also found in other coniferous forest types. Specific mitigation measures for the great gray owl, within the range of the northern spotted owl, include the following: provide a no-harvest buffer of 300 ft. around meadows and natural openings and establish ¼ mile protection zones around known nest sites" (Page C-21).

This species was identified in the NWFP as a survey and manage species requiring surveys in 2001. A Regional survey protocol was developed in 1995 and was updated in January of 2004 (Version 3.0). An amendment to the NWFP occurred in 2001 which moved the great gray owl from a protection buffer species to a Category C species. This category contained uncommon species for which pre-disturbance surveys are practical.

Through the Forest wide assessment, potential great gray owl nesting habitat was mapped across the Forest using forested habitat with high canopy closure within 0.3 miles of an opening (wet meadows, riparian zone or forested opening <5 years old). This mapping effort resulted in 35 acres of potential nesting habitat within the project area (see Table 13).

Table 13. Great Gray Owl Reproductive Habitat within the Greater Suttle Lake Vegetation Management Project Area, Lower Lake Creek Subwatershed, Upper Metolius River Watershed, and Across the Deschutes National Forest.

Acres of Great Gray Owl Habitat in the Project Area	Acres of Great Gray Owl Habitat in the Lower Lake Creek Subwatershed	Acres of Great Gray Owl Habitat in the Upper Metolius River Watershed	Acres of Great Gray Owl Habitat on the Forest
35	1,367	36,232	194,742 acres
0.01% of all great gray owl habitat on the Forest.	0.7% of all great gray owl habitat on the Forest	19% of all great gray owl habitat on the Forest	12% of the entire Forest

Although there is mapped suitable habitat within the project area, pre-disturbance surveys were not warranted in the area. The reasons include several factors such as the amount of acres is minor, the habitat occurs adjacent to roads, trails, and camps, and the recreational use is high. To date, great gray owls have not been sighted within or immediately adjacent to the project area.

This species is considered vulnerable (S3) by NatureServe (2019).

Environmental Consequences

Direct and Indirect Impacts

The project area includes 35 acres of mapped suitable nesting habitat. This area would have many of the dead and diseased trees removed and pre-commercial thinning activities that would open up the stand (lower canopy) degrading the current habitat qualities.

If project activities occur during the breeding season (March 1 – June 30), hazard and danger tree removal, pre-commercial thinning and fuels projects (piling and burning) could have direct, negative impacts to nesting great gray owls that may be within or adjacent to active units. Disturbance during this time could result in nest failure (noise disturbance) or direct loss of individuals (from tree removal or adults away from the nest for too long).

Other activities associated with this project including planting, transplanting, seeding, boraxing, and the Camp Tamarack power line burial would likely have negligible disturbance impacts to individuals.

Cumulative Effects

This project would add incrementally to reasonably foreseeable actions of removal of potential habitat. Danger tree removal along Highway 20 as well as future danger and hazard tree removal within and adjacent to the project area would occur as trees continue to succumb to the diseases that have prompted this project. The removal would not be at the levels as this project, but would be an occasional tree. Therefore, cumulative impacts are expected to the great gray owl from this project, but the degree of impact would be immeasurable as the amount of trees and where they are is not known at this time. There are still areas within and adjacent to the project area as well as within the subwatershed that are not being treated where habitat occurs.

Project Design Criteria/Mitigation Measures

To prevent disturbance of and/or loss of nesting great gray owls and their habitat during breeding season

●No disturbing activities (hazard tree removal, thinning, mowing, burning, habitat improvement, etc.) within ¼ mile and/or line of sight from March 1 – June 30 (WL-33) if an active great gray owl nest is found.

●The project wildlife biologist or Sisters District wildlife biologist would be contacted immediately if new, active raptor nests are discovered or raptors are sighted exhibiting territorial behavior during layout, implementation, or post-sale activities. All activities would cease for a radius of at least 375 feet around the nest site until a biologist evaluates the nest site. Appropriate restrictions would be applied before activities are permitted to continue. Core areas would be established around the new site if it were located. Core areas may be located both inside and outside of treatment unit boundaries.

Consistency

Wildlife standards and guidelines WL-30, WL-31, WL-32, WL-33, and WL-34 will be assessed (Table 14). This project would be consistent with the Forest Plan by adhering to the following Standards and Guidelines:

Table 14. Standards and Guides for the Great Gray owl from the Forest Plan.

Standard and Guideline	Does Not Meet, Meets, Applicable, Not Applicable	Rationale
WL-30 – Nesting habitat for at least 8 nesting pairs of great gray owls will be provided.	Applicable	Habitat is available across the Forest.
WL-31/32 – Active nests will be protected by maintaining forested stand of at least 30 acres of forest adjacent to riparian or meadow. At least 300 feet of forest between the nest and an opening will be maintained.	Applicable if a nest is discovered	These S&G's would be applied if a nest is discovered within the project area at any time during implementation.
WL-33 – Nests will be protected within ¼ mile from disturbing activities (1/4 mile radius = 125 acres around the nest) during March 1-June 30.	Applicable if a nest is discovered	Project Design Criteria are included in this document for a seasonal restriction in the event that an active nest is found.

This is written into this document as a Project Design Criteria and will further be addressed within the projects implementation plan.

Determination/Conclusion

It is expected that nesting habitat would be degraded or removed by the proposed treatments from this project. Although nesting habitat would be degraded or removed, the amount would be minor compared to that available within the subwatershed (impacting 3%), watershed (impacting 0.1%) and Forest (impacting 0.01%). Based on these impacts and that this species is ranked Vulnerable (S3) by NatureServe (2019), the Greater Suttle Lake Vegetation Management Project is expected to have **a small negative impact to the great gray owl and its habitat.** Because this project impacts a minimal amount of suitable habitat across the Forest, the overall direct, and indirect impacts would result in a **small negative trend of habitat and increased disturbance**. This loss of habitat and increased disturbance would be insignificant at the scale of the Forest. The Greater Suttle Lake Vegetation Management Project is consistent with the Forest Plan, and **thus continued viability of the great gray owl is expected on the Deschutes National Forest.**

GREAT BLUE HERON, *Ardea herodias*
MIS

Measures: Effects to nesting habitat and disturbance effects.

Habitat Needs and Existing Condition

The great blue heron is one of the most wide-spread waterbirds in Oregon (Marshall et al. 2003). It is highly adaptable and is found along estuaries, streams, marshes, and lakes throughout the state. The great blue heron migrates to breeding grounds generally in February to early May and migrates south in the fall usually September through October (NatureServe 2019). They prefer to nest in vegetation on islands or in

swamps, probably to avoid ground predators. They nest in colonies, rookeries, in shrubs, trees, and river channel markers where there is little disturbance (Marshall et al. 2003).

This species is considered "apparently secure" (S4) by NatureServe (2019).

Environmental Consequences

Direct and Indirect Impacts

The project area does not include any mapped suitable habitat (USDA 2012?), but this species is seen often within the project area foraging in the lakes. Potential nesting habitat does occur adjacent to the lakes, but the disturbance that occurs from high recreation use may deter birds from nesting here. To date, there are no known nests or rookeries within the project area. If project activities occur during the breeding season (March 1 – August 31), tree removal, pre-commercial thinning, piling and burning and powerline burial, could have direct, negative impacts to nesting herons that may be within or adjacent to the project area (it is unknown without surveys if there are any active nests within a specific action area). Disturbance during this time could result in nest failure (noise disturbance) or direct loss of individuals (from tree removal or adults away from the nest for too long).

Other aspects of the project including planting, transplanting, seeding, and boraxing cut trees would have negligible impacts to great blue herons.

Cumulative Impacts

This project would add incrementally to reasonably foreseeable actions of removal of potential nest trees. Future danger and hazard tree removal would continue to occur within and adjacent to the project area as trees continue to succumb to the diseases that have prompted this project. The removal would not be at the levels as this project, but would be an occasional tree. Therefore, cumulative impacts are expected to great blue heron habitat from this project, but the degree of impact would be immeasurable as the amount of trees and where they are is not known at this time. There are still areas around Suttle Lake, Scout Lake, and Dark Lake that are not being treated where potential nest trees occur.

Project Design Criteria/Mitigation Measures

●If an active great blue heron nest is found adjacent to Dark, Scout, or Suttle Lakes, no disturbing activities (hazard tree removal, thinning, mowing, burning, habitat improvement, etc.) within ¼ mile and/or line of sight from the nest would occur from March 1 – August 31 (WL-35).

Consistency

Wildlife standard and guideline WL-35 will be assessed (Table 15). This project would be consistent with the Forest Plan by adhering to the following Standard and Guideline.

Table 15. Standards and Guides for the Great Blue Heron from the Forest Plan.

Standard and Guideline	Does Not Meet, Meets, Applicable, Not Applicable	Rationale
WL-35 – The vegetative character of rookeries will be protected, and seasonal restrictions on disturbing human activities should be in effect from March 1 through August 31 for ¼ mile radius around the nest tree(s). "Disturbing" activities will vary site specifically. An evaluation of potential disturbance will be made prior to planned activities, should a nest be encountered.	Applicable if a nest/rookery is discovered	Foraging habitat occurs within the project area, as well as potential nesting habitat.

This is written into this document as a Project Design Criteria and will further be addressed within the projects implementation plan.

Determination/Conclusion

Implementation of the Greater Suttle Lake Vegetation Management Project would remove potential nest trees adjacent to Suttle, Scout, and Dark Lakes. Project activities that occur during the breeding season (March 1 – August 31) could have a negative impact to nesting great blue herons that may be within or adjacent to the project area.

Because this project impacts a minimal amount of suitable habitat that occurs adjacent to lakes across the Forest, the overall direct and indirect effects would result in a small negative trend of habitat and increased disturbance. This loss of habitat and increased disturbance would be insignificant at the scale of the Forest. The Greater Suttle Lake Vegetation Management Project is consistent with the Forest Plan (by incorporating project design criteria for protection during the nesting season), thus continued viability of the great blue heron is expected on the Deschutes National Forest.

WATERFOWL
MIS

Measures: Effects to nesting habitat and disturbance effects.

Habitat Needs and Existing Condition

Many species of waterfowl can be found utilizing the habitat at Dark, Scout, and Suttle Lakes. These lakes provide suitable foraging and nesting habitat, although all three lakes have heavy recreational use, which has an impact on use by these birds. Most of the waterfowl listed below in Table 16 can be found in spring/summer (potential nesters) and/or winter/fall (migrating).

Table 16. Occurrence of MIS Waterfowl Species on the Deschutes National Forest.

Species	Basic Habitat Description		Species	Basic Habitat Description
Divers			**Dabblers**	
Common loon *Gavia immer*	Riparian edge of freshwater ponds & lakes		Canada goose *Branta canadensis*	Mixed habitats near water
Pied-billed grebe *Podilymbus podiceps*	Edge of open water on lakes, ponds, slow rivers & marshes		Wood duck *Aix sponsa*	Nesting cavities near water
Horned grebe *Podiceps auritus*	Open water with emergent vegetation		Gadwall *Anas strepera*	Meadow or shrub habitat near water
Red-necked grebe *Podiceps grisegena*	Lakes & ponds in forested areas		American wigeon *Anas americana*	Grass/vegetation clumps near water
Eared grebe *Podiceps nigricollis*	Open water with emergent vegetation		Mallard *Anas platyrhynchos*	Open water with emergent vegetation
Western grebe *Aechmophorus occidentalis*	Marshes with open water, Lakes with emergent vegetation		Blue-winged teal *Anas discors*	Marshes, lakes, ponds & slow rivers
Canvasback *Aythya valisineria*	Waters with emergent vegetation		Cinnamon teal *Anas cyanoptera*	Shoreline with vegetative cover
Redhead *Aythya americana*	Marshes and lakes with vegetative cover		Northern shoveler *Anas clypeata*	Grassy areas near water
Ring-necked duck *Athya collaris*	Shoreline with thick emergent vegetation		Northern pintail *Anas acuta*	Open areas near water
Lesser scaup *Aythya affinis*	Grassy areas near deep water		Green-winged teal *Anas crecca*	Freshwater marshes with emergent vegetation
Harlequin duck *Histrionicus*	Shoreline of low gradient streams		Canada goose *Branta canadensis*	Mixed habitats near water
Common goldeneye *Bucephala clangula*	Nesting cavities near water		Wood duck *Aix sponsa*	Nesting cavities near water
Bufflehead *Bucephala albeola*	Nesting cavities near water		Gadwall *Anas strepera*	Meadow or shrub habitat near water
Barrow's goldeneye *Bucephala islandica*	Nesting cavities near water		American wigeon *Anas americana*	Grass/vegetation clumps near water
Hooded merganser *Lophodytes cucullatus*	Nesting cavities near water		Mallard *Anas platyrhynchos*	Open water with emergent vegetation
Common merganser *Mergus merganser*	Nesting cavities near water		Blue-winged teal *Anas discors*	Marshes, lakes, ponds & slow rivers
Ruddy duck *Oxyura jamaicensis*	Freshwater marshes, lakes & ponds with dense vegetation			

Environmental Consequences

Direct and Indirect Impacts

The proposed project would be removing dead and diseased trees that would afford suitable habitat for cavity nesting waterfowl. The loss of large dead and diseased trees would have long-term impacts on this type of nesting habitat.

If the project occurs during the breeding season (April 15 – July 15), tree removal, pre-commercial thinning, piling, burning, and the Camp Tamarack power line burial could have direct, negative impacts to nesting waterfowl (both cavity and ground nesting) that may be within or adjacent to the project area (it is unknown without surveys if there are any active nests within a specific action area). Disturbance during this time could result in nest failure (noise disturbance) or direct loss of individuals (from tree removal or adults away from the nest for too long).

Other aspects of the project including planting, transplanting, seeding, and boraxing cut trees, would have negligible impacts to waterfowl.

Cumulative Impacts

This project would add incrementally to reasonably foreseeable actions of removal of potential nest trees for cavity nesting waterfowl. Future danger and hazard tree removal would continue to occur within and adjacent to the project area as trees continue to succumb to the diseases that have prompted this project. The removal would not be at the levels as this project, but would be an occasional tree. Therefore, cumulative impacts are expected to waterfowl habitat from this project, but the degree of impact would be immeasurable as the amount of trees and where they are is not known at this time. There are still areas around Suttle Lake, Scout Lake, and Dark Lake that are not being treated where potential nesting habitat occurs.

Project Design Criteria/Mitigation Measures

●To minimize disturbance and direct impact to nesting waterfowl, **limit the amount of tree removal, thinning, piling and burning to the extent feasible during the time from April 15 to July 15.**

● Snags determined to be safety hazards in areas of concentrated public use should be **topped** (a minimum of 15" dbh, but prefer 20"dbh or larger) ***or removed*** (M11-31). This could also pertain to diseased trees that are considered a danger/hazard tree.

●Nest boxes should be placed in campgrounds and other places of concentrated public use if all dead and diseased trees are removed, to allow observation opportunities of cavity-nesting wildlife (M11-31).

Consistency

Wildlife standards and guidelines M11-31 will be assessed. This project would be consistent with the Forest Plan by adhering to the following Standards and Guidelines in Table 17:

Table 17. Standards and Guides for Wildlife in MA 11 from the Forest Plan.

Standard and Guideline	Does Not Meet, Meets, Applicable, Not Applicable	Rationale
M11-31– Snags determined to be safety hazards should be topped or removed. Nest boxes should be placed in campgrounds and other places of concentrated public use to	Applicable	Dead and diseased trees occur within the campgrounds and M11 allocations adjacent to the campgrounds.

Standard and Guideline	Does Not Meet, Meets, Applicable, Not Applicable	Rationale
allow observation opportunities of cavity nesting wildlife.		

This is written into this document as a Project Design Criteria and will further be addressed within the projects implementation plan.

Determination/Conclusion

Implementation of the Greater Suttle Lake Vegetation Management Project would remove potential nest trees for cavity nesting waterfowl adjacent to Suttle, Scout, and Dark Lakes. Activities that would occur adjacent to active nests (April 15 – July 15), both in cavities or adjacent to the lakeshore vegetation, could have negative impacts to nesting waterfowl.

Because this project impacts a minimal amount of habitat that occurs adjacent to lakes across the Forest for waterfowl, the overall direct and indirect effects would result in a small negative trend of habitat and increased disturbance. This loss of habitat and increased disturbance would be insignificant at the scale of the Forest. The Greater Suttle Lake Vegetation Management Project is consistent with the Forest Plan (by incorporating project design criteria for protection nesting waterfowl), thus continued viability of the variety of species of waterfowl found in the project area is expected on the Deschutes National Forest.

WOODPECKERS (CAVITY NESTERS)/DEAD WOOD DEPENDENT MIS SPECIES

Measure: Proportion of reproductive habitat acres impacted; disturbance during the nesting season.

The woodpecker group was chosen as terrestrial management indicator species (MIS) on the Deschutes National Forest (see Table 18). This group was chosen to represent all wildlife species that use cavities for nesting. On the Deschutes National Forest, eleven woodpecker species excavate cavities that are utilized by other species of hole-nesters incapable of excavating their own nest site, known as secondary cavity nesters. The woodpeckers, as well as many of the secondary cavity nesters, consume forest insects thereby contributing a valuable suppression influence on destructive forest pests (USDA 1990). Several species of woodpeckers may occur within the project area and are discussed below.

Table 18. Occurrence of MIS Woodpeckers for the Greater Suttle Lake Vegetation Management Project Area.

Species (NatureServe State Ranking)	Basic Habitat Description	Known or Suspected to be Present in/near Project Area	Suitable Habitat Present in/near Project Area
Lewis' woodpecker***** *Melanerpes lewis* (S2 Imperiled)	Ponderosa pine, burned forest	Y	Y
White-headed woodpecker*****	Mature ponderosa pine	Y	Y

Species (NatureServe State Ranking)	Basic Habitat Description	Known or Suspected to be Present in/near Project Area	Suitable Habitat Present in/near Project Area
Picoides albolarvatus (S2 Imperiled)			
Red-naped sapsucker *Sphyrapicus nuchalis* (S4 Apparently Secure)	Riparian hardwood forest	Y	N
Red-breasted sapsucker *Sphyrapicus ruber* (S4 Apparently Secure)	Riparian hardwood forest	Y	Y
Downy woodpecker *Picoides pubescens* (S4 Apparently Secure)	Riparian hardwood forest	Y	N
Black-backed woodpecker *Picoides arcticus* (S3 Vulnerable)	Lodgepole pine, burned forest	Y	Y
Three-toed woodpecker *Picoides dorsalis* (S3 Vulnerable)	High elevation lodgepole pine forest	Y	Y
Hairy woodpecker *Picoides villosus* (S4 Apparently Secure)	Mixed conifer & ponderosa pine forests	Y	Y
Northern flicker *Colaptes auratus* (S5 secure)	Variety of forest types with edge habitat	Y	Y
Pileated woodpecker *Dryocopus pileatus* (S4 Apparently Secure)	Mature/old growth mixed conifer	Y	Y
Williamson's sapsucker *Sphyrapicus thyroideus* (S4 Apparently Secure)	Mature/old growth conifer forest with open canopy	Y	Y

*Species also analyzed as federally listed or sensitive

Lewis' woodpecker and white-headed woodpecker were addressed earlier in the Sensitive Species section.

DOWNY WOODPECKER, *Picoides pubescens*
RED-BREASTED SAPSUCKER, *Sphyrapicus ruber*
RED-NAPED SAPSUCKER, *Sphyrapicus nuchalis*
MIS

Habitat Needs and Existing Condition

Downy woodpecker: The downy woodpecker is the smallest and one of the most widespread woodpeckers found in North America (Marshall et al. 2003, Jackson and Ouellet 2002). This woodpecker varies in size and plumage color and pattern but is most similar in appearance to the hairy woodpecker (Marshall et al. 2003, Jackson and Ouellet 2002). It is found in both green and burned forests.

Red-breasted sapsucker: The red-breasted sapsucker is found in moist coniferous coastal forests and mixed deciduous coniferous forests west of the Cascade crest and aspen-ponderosa pine forests east of the Cascade crest (Trombino 1998, Marshall et al. 2003, NatureServe 2019).

The red-breasted sapsucker forages over a wide variety of tree species with the majority of foraging occurring on live, old-growth trees (Lundquist 1988, Walters et al. 2002, Marshall et al. 2003). A variety of foraging techniques are utilized from pecking, probing, gleaning, and sapsucking (Lundquist 1988) with most activity occurring on tree trunks (Walters et al. 2002). A variety of tree species have been documented to have sap wells from western hemlock, subalpine fir, red alder, Pacific silver fir, lodgepole pine, Douglas-fir, broadleaf maple, aspen, willow, red fir, and white fir (Walters et al. 2002).

For a detailed assessment of life history and status of the red-breasted sapsucker on the Deschutes National Forest, see the Forestwide Species Assessment (USDA FS 2012q).

Red-naped sapsucker: Red-naped sapsuckers are primarily found in riparian areas or coniferous forests that include aspen (Trombino 1998, Marshall et al. 2003, NatureServe 2019). However, it is also found in cottonwood, alder, and pine forests and less frequently in mixed conifer forests (Marshall et al. 2003), as well as aspen-fir parklands, montane conifer forests, and subalpine forest edges (Walters et al. 2002). They will use logged areas however, unlogged coniferous forests surrounding harvest units is likely essential for adult survival and productivity (Tobalske 1992).

Little information exists on the foraging habitat requirements for the red-naped sapsucker. Reports are general in nature and focuses on where the birds drill for sap. The presence of sap wells is generally associated with conifers like Douglas-fir, lodgepole pine, white spruce and western larch (Walters et al. 2002, NatureServe 2019). Deciduous trees are also used once these species leaf out (aspen, cottonwood, willow, and birch) (Walters et al. 2002, NatureServe 2019). Foraging techniques include sap feeding at wells (includes drilling), feeding on aspen buds, gleaning insects, and fly-catching (Walters et al. 2002). For a detailed assessment of life history and status of the red-naped sapsucker on the Deschutes National Forest, see the Forestwide Species Assessment (USDA FS 2012q).

For the Forest-wide assessment completed for MIS, downy woodpecker, red-breasted sapsucker, and red-naped sapsucker habitat was mapped using Viable modeling across the entire Deschutes National Forest. Nesting habitat was mapped using the hardwood layer which was developed from the forest-wide aspen layer as well as using vegetation information in GIS that was coded as aspen or hardwoods. Mixed mortality fires were removed from mapped potential habitat. Acres of potential nesting habitat was then mapped by watershed and subwatershed. Habitat was not quantified by applying the DecAID tolerance levels, as there was no information regarding snag densities. Table 19 summarizes this data. Within the Upper Metolius Watershed there is 466 acres of mapped habitat, while in the Lower Lake Creek Subwatershed, there is 5 acres of mapped habitat. There is no mapped habitat for any of these species within the Greater Suttle Lake Vegetation Management Project area. Potential habitat does occur within the riparian areas that have hardwood trees at Suttle Lake and Dark Lake. .

Table 19. Downy Woodpecker, Red-breasted Sapsucker, and Red-Naped Sapsucker Reproductive Habitat within the Greater Suttle Lake Vegetation Management Project Area, Lower Lake Creek Subwatershed, Upper Metolius Subwatershed, and across the Deschutes National Forest.

Acres of Habitat in the Project Area	Acres of Habitat in the Lower Lake Creek Subwatershed	Acres of Habitat in the Upper Metolius Watershed	Acres of Habitat on the Forest
0 mapped, but there is 1.6 mapped acres of	5	466	1,331

Acres of Habitat in the Project Area	Acres of Habitat in the Lower Lake Creek Subwatershed	Acres of Habitat in the Upper Metolius Watershed	Acres of Habitat on the Forest
wetland habitat with hardwood trees			
	0.3% of all habitat on the Forest	35% of all habitat on the Forest	0.08% of the entire Forest

These woodpecker species are all ranked as S4 – apparently secure by Natureserve. Sightings of these woodpecker species have occurred within or adjacent to the project area.

BLACK-BACKED WOODPECKER, *Picoides arcticus*
MIS

Habitat Needs and Existing Condition

The black-backed woodpecker is a unique species. Altman (2000) identified it as a focal species for old-growth lodgepole pine for the East Cascades Landbird Strategy. However, it is also highly associated with post-fire environments. Black-backed woodpeckers are highly associated with stand replacement fire and local irruptions may occur after fire or insect outbreaks (Dudley and Saab 2007). Saab et al. (2004) found black-backed woodpeckers rapidly colonize stand replacement burns within 1-2 years post-fire but are rare within 5 years which may be due to a decrease in prey of larval bark and wood boring beetles.

Recently dead trees (<2 years) were used most often (68%) for foraging in Central Oregon while this species foraged equally on both live and dead trees in northeastern Oregon, preferring lodgepole pine (Bull et al. 1986). High density burned stands may provide greater foraging opportunities as this species feeds primarily on bark and wood boring beetles (Harris 1982, Saab et al 2002, and Saab et al 2004). Black-backed woodpeckers selected moderate to heavily burned trees where beetles were very abundant (Murphy and Lehnhausen 1998). It has been decades since a stand replacement fire has occurred within the project area. Any habitat being utilized within the project area is from mountain pine beetle outbreaks and other insect and disease factors. The black-backed woodpecker is considered “vulnerable” by Natureserve (2019).

For a detailed assessment of life history and status of the black-backed woodpecker on the Deschutes National Forest, see the Forestwide Species Assessment (USDA FS 2012c).

For the Forest-wide assessment, black-backed woodpecker habitat was mapped using Viable modeling across the entire Deschutes National Forest. Black-backed woodpecker nesting habitat was mapped using lodgepole pine dominated forests which include all lodgepole pine plant association groups (PAGs) in all seral stages (early, mid, late) in addition to other PAGs (i.e. mixed conifer and ponderosa pine) in the early and mid-seral stages where lodgepole pine is dominant. In addition, stand size had to range from 5-20” dbh and be open or closed (based on the canopy cover level thresholds for each PAG) to be mapped as potential habitat. Recent fires (less than 5 years old) with stand replacement or mixed severity were also classified as habitat. Recent (since 2002) forest management activities that resulted in conditions other than described above were removed from mapped potential habitat. Table 20 summarizes this data.

Table 20. Black-Backed Woodpecker Reproductive Habitat within the Greater Suttle Lake Vegetation Management Project Area, Lower Lake Creek Subwatershed, Upper Metolius Subwatershed, and across the Deschutes National Forest.

Acres of Black-Backed Woodpecker Habitat in the Project Area	Acres of Black-Backed Woodpecker Habitat in the Lower Lake Creek Subwatershed	Acres of Black-Backed Woodpecker Habitat in the Upper Metolius Watershed	Acres of Black-Backed Woodpecker Habitat on the Forest
30	3,028	24,146	446,003
12% of project habitat acres. 0.006% of all black-backed woodpecker habitat on the Forest.	3% of all black-backed woodpecker habitat on the Forest	7% of all black-backed woodpecker habitat on the Forest	31% of the entire Forest

THREE-TOED WOODPECKER, *Picoides dorsalis*
MIS

Habitat Needs and Existing Condition

The three-toed woodpecker has been identified as a "bark beetle specialist" found in high elevation forests near the Cascade crest (Marshall et al. 2003). The three-toed woodpecker is highly associated with post-fire environments but is also found in unburned forests. Goggans et al. (1989) found three-toed woodpeckers to forage in mixed conifer, mixed conifer dominated by lodgepole pine, and lodgepole pine forest types while Bull et al. (1986) found this woodpecker foraging in grand fir forest types containing lodgepole pine.

The three-toed woodpecker feeds primarily on bark beetle larvae (Murphy and Lehnhausen 1998). This species is associated with post-fire habitats and Fayt et al. (2005) found three-toed woodpeckers were substantially more abundant in recently burned forests than in unburned forests. It has been decades since a stand replacement fire has occurred within the project area. Any habitat being utilized within the project area is from mountain pine beetle outbreaks and other insect and disease factors.

For a detailed assessment of life history and status of the three-toed woodpecker on the Deschutes National Forest, see the Forestwide Species Assessment (USDA FS 2012u).

For the Forest-wide assessment, three-toed woodpecker habitat was mapped using Viable modeling across the entire Deschutes National Forest. Three-toed woodpecker nesting habitat was mapped using lodgepole pine dominated forests which include all lodgepole pine plant association groups (PAGs) in all seral stages (early, mid, late) in addition to other PAGs (i.e. mixed conifer and mtn. hemlock) in the early and mid-seral stages where lodgepole pine is dominant. In addition, stand size had to range from 5-15" dbh and be open or closed (based on the canopy cover level thresholds for each PAG) to be mapped as potential habitat. Recent fires (less than 5 years old) with stand replacement or mixed severity were also classified as habitat. Recent (since 2002) forest management activities that resulted in conditions other than described above were removed from mapped potential habitat. Table 21 summarizes this data.

Table 21. Three-Toed Woodpecker Reproductive Habitat within the Greater Suttle Lake Vegetation Management Project Area, Lower Lake Creek Subwatershed, Upper Metolius Subwatershed, and across the Deschutes National Forest.

Acres of Three-Toed Woodpecker Habitat in the Project Area	Acres of Three-Toed Woodpecker Habitat in the Lower Lake Creek Subwatershed	Acres of Three-Toed Woodpecker Habitat in the Upper Metolius Watershed	Acres of Three-Toed Woodpecker Habitat on the Forest
30	1,094	25,042	367,499
12% of project habitat acres. 0.008% of all three-toed woodpecker habitat on the Forest.	0.2% of all three-toed woodpecker habitat on the Forest	7% of all three-toed woodpecker habitat on the Forest	23% of the entire Forest

The three-toed woodpecker is considered "vulnerable" by Natureserve (2019).

HAIRY WOODPECKER, *Picoides villosus*
MIS

Habitat Needs and Existing Condition

The hairy woodpecker is a primary cavity nester that is able to adapt to a wide variety of habitats. It is found in deciduous or coniferous forest, well-wooded towns and parks, and even open situations with scattered trees (Sousa 1987). This species is also associated with post-fire environments.

Bull et al. (1986) found hairy woodpeckers in northeastern Oregon foraged primarily in ponderosa pine forest types and also used grand fir types. Hairy woodpeckers use both live and dead trees for foraging (Bull et al. 1986, Lundquist 1988). Live lodgepole pine and western larch were preferred in northeastern Oregon as well as ponderosa pine >10"dbh (Bull et al. 1986). Hairy woodpeckers are abundant in recently post-fire burned areas. Murphy and Lenhausen (1998), Harris (1982), found hairy woodpeckers were abundant 1-2 years post-fire and then decreased where Kriesel and Stein (1999) found hairy woodpeckers were the most abundant woodpecker regardless of year post-fire (monitored for 4 years).

For a detailed assessment of life history and status of the hairy woodpecker on the Deschutes National Forest, see the Forestwide Species Assessment (USFS 2012j).

For the Forest-wide assessment, hairy woodpecker habitat was mapped using Viable modeling across the entire Deschutes National Forest. Hairy woodpecker nesting habitat was mapped using mixed conifer, ponderosa pine, and lodgepole pine plant association groups (PAGs) in early, mid and late seral stages. In addition, stand size had to range from 11-20"dbh in mixed conifer and ponderosa pine and range from 5-20"dbh in lodgepole pine and have open stand characteristics (based on the canopy cover level thresholds for each PAG) to be mapped as potential habitat. Recent fires (less than 5 years old) with stand replacement severity were added as habitat. Recent (since 2002) forest management activities that resulted in conditions other than described above were removed from mapped potential habitat. Table 22 summarizes this data.

Table 22. Hairy Woodpecker Reproductive Habitat within the Greater Suttle Lake Vegetation Management Project Area, Lower Lake Creek Subwatershed, Upper Metolius Subwatershed, and across the Deschutes National Forest.

Acres of Hairy Woodpecker Habitat in the Project Area	Acres of Hairy Woodpecker Habitat in the Lower Lake Creek Subwatershed	Acres of Hairy Woodpecker Habitat in the Upper Metolius Watershed	Acres of Hairy Woodpecker Habitat on the Forest
240	2,132	37,836	585,609 acres
96% of project acres. 0.04% of all hairy woodpecker habitat on the Forest.	0.3% of all hairy woodpecker habitat on the Forest	6% of all hairy woodpecker habitat on the Forest	36% of the entire Forest

The hairy woodpecker is considered "apparently secure" by Natureserve (2019).

NORTHERN FLICKER, *Colaptes auratus*
MIS

Habitat Needs and Existing Condition

Northern flickers are perhaps the most common resident woodpecker in Oregon, and can use a variety of habitat types from wilderness to backyards. They can be found in a range of terrestrial habitats but are generally abundant in open forests and forest edges adjacent to open country (Marshall et al. 2003). They typically avoid dense forest (Marshall et al. 2003). This species is also associated with post-fire environments.

Northern flickers require open space for nesting and foraging (Marshall et al. 2003). Open space or open habitat has been lost due to fire suppression leading to over-stocked stands of trees and shrubs. In addition, this leads to increased risk of loss of large trees (future snags) and snags from wildfire. Forest management activities also result in the loss of large, decayed snags which reduces potential nesting habitat and could lead to further population declines. The northern flicker is a unique species as it forages almost exclusively on the ground during the summer specializing on ants and beetle larvae (Bull 1980, Bull et al. 1986, Elchuk and Wiebe 2002, and Weibe and Moore 2008). Although over 80% of the ground foraging and pecking occurred in the summer, Bull (1980) found foraging changed to excavating in dead and down woody material in the fall. This reflects a decrease in ground insect availability. Bull et al. (1986) also reported flickers excavated, pecked, gleaned, and harvested seeds in live and dead trees, down woody material, and stumps. The northern flicker is considered "secure" by Natureserve (2019).

For a detailed assessment of life history and status of the northern flicker on the Deschutes National Forest, see the Forest-wide Species Assessment (USDA FS 2012m).

For the Forest-wide assessment, northern flicker habitat was mapped using Viable modeling across the entire Deschutes National Forest. Northern flicker nesting habitat was mapped using plant association groups from juniper, lodgepole pine, ponderosa pine, grand/white fir, and Douglas-fir in all seral stages. In addition, stand size had to be a minimum diameter of 10"dbh or greater in lodgepole pine and 15" dbh in all other PAGs and have open stand characteristics (based on the canopy cover level thresholds for each PAG) to be mapped as potential habitat. Recent fires (less than 5 years old) with stand replacement or mixed severity were also classified as habitat. Recent (since 2002) forest management activities that

resulted in conditions other than described above were either removed from or added to mapped potential habitat depending on the resulting outcome of the treatment. Table 23 summarizes this data.

Table 23. Northern Flicker Reproductive Habitat within the Greater Suttle Lake Vegetation Management Project Area, Lower Lake Creek Subwatershed, Upper Metolius Subwatershed, and across the Deschutes National Forest.

Acres of Northern Flicker Habitat in the Project Area	Acres of Northern Flicker Habitat in the Lower Lake Creek Subwatershed	Acres of Northern Flicker Habitat in the Upper Metolius Watershed	Acres of Northern Flicker Habitat on the Forest
42	1,503	12,431	239,505
17% of project acres. 0.003% of all northern flicker habitat on the Forest.	0.6% of all northern flicker habitat on the Forest	5% of all northern flicker habitat on the Forest	15% of the entire Forest

PILEATED WOODPECKER, *Dryocopus pileatus*
MIS

Habitat Needs and Existing Condition

The pileated woodpecker is considered a keystone habitat modifier in the Pacific Northwest (Aubry and Raley 2002). A keystone habitat modifier is a species whose activities substantially alter the physical structure of the environment influencing both available habitat for other species and various ecosystem processes (Aubry and Raley 2002). The pileated woodpecker is a keystone habitat modifier because of the effects of its excavations on habitat for many other species. This species provides nesting and roosting habitat for secondary cavity users through the excavation of nest cavities and cavity starts, excavation of openings into roost cavities, and foraging excavations (Aubry and Raley 2002). Over 20 species of secondary cavity users in the Pacific Northwest have been documented nesting and roosting in old cavities or openings excavated by pileated woodpeckers (Aubry and Raley 2002).

The pileated woodpecker forages on logs, live trees, and snags (Bull 1980, Madsen 1985, Bull et al. 1986, Bull 1987, Raley and Aubry 2005). Raley and Aubry (2005) found that these woodpeckers foraged extensively on downed structures with the average diameter and length with recent excavations ranged from 20-22cm dbh (7.8-8.6" dbh) and 5-9 meters (16-29.5 feet) long respectively. They also reported pileated woodpeckers selected for larger and longer logs and logs greater in diameter and length provide better habitat for wood-dwelling arthropods over a longer period than smaller logs (Raley and Aubry 2005). The pileated woodpecker is considered "apparently secure" by Natureserve (2019).

For a detailed assessment of life history and status of the pileated woodpecker on the Deschutes National Forest, see the Forestwide Species Assessment (USDA FS 2012p).

For the Forest-wide assessment, pileated woodpecker habitat was mapped using Viable modeling across the entire Deschutes National Forest. Pileated woodpecker nesting habitat was mapped using mixed conifer dominated forests which include all mixed conifer and mountain hemlock plant association groups (PAGs) in mid and late seral stages. In addition, stand size had to be a minimum diameter of 15"dbh or greater and have dense stand characteristics (based on the canopy cover level thresholds for each PAG) to be mapped as potential habitat. Recent fires (less than 5 years old) with stand replacement severity were

removed as habitat. Recent (since 2002) forest management activities that resulted in conditions other than described above were also removed from mapped potential habitat. Table 24 summarizes this data.

Table 24. Pileated Woodpecker Reproductive Habitat within the Greater Suttle Lake Vegetation Management Project Area, Lower Lake Creek Subwatershed, Upper Metolius Subwatershed, and across the Deschutes National Forest.

Acres of Pileated Woodpecker Habitat in the Project Area	Acres of Pileated Woodpecker Habitat in the Lower Lake Creek Subwatershed	Acres of Pileated Woodpecker Habitat in the Upper Metolius Watershed	Acres of Pileated Woodpecker Habitat on the Forest
36	694	20,192	146,402
14% of the project acres. 0.02% of all pileated woodpecker habitat on the Forest.	0.4% of all pileated woodpecker habitat on the Forest	4% of all pileated woodpecker habitat on the Forest	14% of the entire Forest

WILLIAMSON'S SAPSUCKER, *Sphyrapicus thyroideus*
MIS

Habitat Needs and Existing Condition

Altman (2000) identified the Williamson's sapsucker as a focal species for mixed conifer late-successional forests with large snags. This species breeds in mid to high elevation mature or old growth conifer forests with fairly open canopy cover (Thomas 1979).

Douglas-fir and western larch were found to be preferred for foraging by Williamson's sapsuckers (Madsen 1985, Bull et al. 1986, and Bevis and Martin 2002). Live or live defective trees were used more frequently and diameters ranged from 9-27" dbh (Madsen 1985, Bull et al. 1986). Bull et al. (1986) reported Williamson's sapsuckers fed at sap wells three quarters of the time and pecked or gleaned on live trees the remainder of the time.

For a detailed assessment of life history and status of the Williamson's sapsucker on the Deschutes National Forest, see the Forestwide Species Assessment (USDA FS 2012y).

For the Forest-wide assessment, Williamson's sapsucker habitat was mapped using Viable modeling across the entire Deschutes National Forest. Williamson's sapsucker nesting habitat was mapped using ponderosa pine, Douglas-fir, grand fir, and white fir dominated forests which include all plant association groups (PAGs) in all seral stages (early, mid, late). In addition, stand size had to be a minimum diameter of 20"dbh or greater and have either open or dense stand characteristics (based on the canopy cover level thresholds for each PAG) to be mapped as potential habitat. Both open and dense canopy thresholds were used to capture most habitat as the threshold mentioned in the literature didn't fit with the Viable thresholds. It is assumed there will be some over-estimation of habitat due to this. Recent fires and forest management activities (since 2002) that resulted in conditions other than described above were removed from mapped potential habitat. Table 25 summarizes this data.

Table 25. Williamson's Sapsucker Reproductive Habitat within the Greater Suttle Lake Vegetation Management Project Area, Lower Lake Creek Subwatershed, Upper Metolius Subwatershed, and across the Deschutes National Forest.

Acres of Williamson's Sapsucker Habitat in the Project Area	Acres of Williamson's Sapsucker Habitat in the Lower Lake Creek Subwatershed	Acres of Williamson's Sapsucker Habitat in the Upper Metolius Watershed	Acres of Williamson's Sapsucker Habitat on the Forest
160	2,473	25,096	254,116
64% of the project acres. 0.06% of all Williamson's sapsucker habitat on the Forest.	0.9% of all Williamson's sapsucker habitat on the Forest	10% of all Williamson's sapsucker habitat on the Forest	16% of the entire Forest

Approximately 160 acres of Williamson's sapsucker reproductive habitat exists within the project area, which is 0.06% of the total Forest acres. Within the Lower Lake Creek Subwatershed approximately 2,473 acres occurs, and 125,096 acres occurs within the Upper Metolius River Watershed. The Williamson's sapsucker is considered "apparently secure" by Natureserve (2019).

Environmental Consequences

Direct and Indirect Impacts

The following table displays all of the woodpecker species and the number of acres treated in their mapped suitable habitat.

Table 26. Woodpecker Species that Occur within the Greater Suttle Lake Vegetation Management Project and the Amount of Mapped Suitable Habitat Acres that Occurs and would be Treated With the Project.

Species	Acres of Habitat within the Project area and proposed for treatment within the Project area	% of habitat impacted across the Forest
Red-breasted and red-naped sapsucker and downy woodpecker	1.6	0.1
Black-backed woodpecker	30	0.006
Three-toed woodpecker	30	0.008
Hairy woodpecker	240	0.04
Northern flicker	42	0.003
Pileated woodpecker	36	0.02
Williamson's sapsucker	160	0.06

The project would impact between 1.6 and 240 acres of potential nesting habitat for woodpeckers, depending upon the species. This would be 0.008 to 0.1 % of woodpecker habitat across the Forest.

If the project occurs during the breeding season (April 15 – July 15), removal of dead and diseased trees, piling, burning, and noise disturbance from the Camp Tamarack power line burial, could have direct, negative impacts to nesting woodpeckers that may be within or adjacent to active units (it is unknown without surveys if they are nesting adjacent to any units). Disturbance during this time could result in nest failure (noise disturbance) or direct loss of individuals (from adults away from the nest for too long).

While tree removal and fuels activities (piling and burning) have the potential to disrupt nesting pairs of woodpeckers, this would be a short-term impact (1-3 years) and only where activities would occur during the spring nesting season.

Other aspects of the project including planting, transplanting, seeding, and boraxing cut trees would have negligible impacts to woodpeckers.

Cumulative Impacts

This project would add incrementally to reasonably foreseeable actions of removal of potential habitat. Danger tree removal along Highway 20 as well as future danger and hazard tree removal within and adjacent to the project area would occur as trees continue to succumb to the diseases that have prompted this project. The removal would not be at the levels as this project, but would be an occasional tree. Therefore, cumulative impacts are expected to the above listed woodpecker species from this project, but the degree of impact would be immeasurable as the amount of trees and where they are is not known at this time. There are still areas within and adjacent to the project area as well as within the subwatershed that are not being treated where habitat occurs.

Project Design Criteria/Mitigation Measures

To prevent disturbance of and/or loss of nesting woodpeckers during the breeding season

●To minimize disturbance and direct impacts to nesting woodpeckers, **limit the amount of tree removal, pre-commercial thinning, piling and burning to the extent feasible during the time from April 15 to July 15.**

● Snags determined to be safety hazards in areas of concentrated public use should be **topped** (a minimum of 15" dbh, but prefer 20"dbh or larger) ***or removed*** (M11-31). This could also pertain to diseased trees that are considered a danger/hazard tree.

●Nest boxes should be placed in campgrounds and other places of concentrated public use if all dead and diseased trees are removed, to allow observation opportunities of cavity-nesting wildlife (M11-31).

Consistency

Wildlife standards and guidelines M11-31 will be assessed. This project would be consistent with the Forest Plan by adhering to the following Standards and Guidelines in Table 27:

Table 27. Standards and Guides for Wildlife in MA 11 from the Forest Plan.

Standard and Guideline	Does Not Meet, Meets, Applicable, Not Applicable	Rationale
M11-31– Snags determined to be safety hazards should be topped or removed. Nest boxes should be placed in campgrounds and other places of concentrated public use to	Applicable	Dead and diseased trees occur within the campgrounds and M11 allocations adjacent to the campgrounds.

Standard and Guideline	Does Not Meet, Meets, Applicable, Not Applicable	Rationale
allow observation opportunities of cavity nesting wildlife.		

This is written into this document as a Project Design Criteria and will further be addressed within the projects implementation plan.

Determination/Conclusion

Implementation of the Greater Suttle Lake Vegetation Management Project would remove potential foraging and nest trees (dead and diseased trees) for woodpeckers throughout the project area, impacting the levels of current and future habitat. The amount of suitable acres impacted for each species varies at the Forest level, from 0.01% to 0.008%. Activities that would occur adjacent to active nests (April 15 – July 15) could have a negative impact to nesting woodpeckers.

Because this project impacts suitable nesting habitat (although minimal) across the Forest and could have negative impacts to nesting woodpeckers, the overall direct, indirect and cumulative impacts would result in a small negative trend of habitat and increased disturbance. This loss of habitat and increased disturbance would be insignificant at the scale of the Forest. The Greater Suttle Lake Vegetation Management Project is consistent with the Forest Plan (by incorporating project design criteria for protection during the nesting season), thus continued viability of woodpecker species is expected on the Deschutes National Forest.

RED-TAILED HAWK, *Buteo jamaicensis*
MIS

Measures: Effects to nesting habitat and disturbance effects.

Habitat Needs and Existing Condition

The red-tailed hawk is an abundant species occupying a variety of open to semi-open habitat types and can tolerate ranging elevations, alpine to sea level. However, they generally avoid tundra and dense, unbroken forests (USDA FS 2012r). Preferred habitats are open to semi-open coniferous, deciduous and mixed forests, forest edges, grasslands, parklands, rangelands, river bottomlands, and agricultural fields with scattered trees (USDA 2012r). Forest clearings, alpine meadows, estuaries, marshes, agricultural lands, clear cuts, sagebrush plains, and high elevation environments are also used, though less commonly.

Limiting factors in preferred habitat are availability of suitable perches and hunting grounds open enough to locate and catch ground prey (USDA FS 2012r). Perches can be any object that provides an unobstructed view of a red-tailed hawk territory. These objects are usually high and can be natural, e.g. tree, snag, cliff, rock, or man-made, e.g. utility pole, tower, fence (USDA FS 2012r).

Nesting occurs in large mature trees, usually at a forest edge or near an opening in the canopy (USDA FS 2012r). Nests are usually placed higher in trees verses other raptors, and are generally in the largest,

tallest tree available or smaller deformed trees where branch structure supports this higher placement (USDA FS 2012r). Nests are often reused from year to year provided the nest is not occupied by earlier nesting raptors and is in suitable condition (USDA FS 2012r).

For the detailed assessment on red-tailed hawks for the Deschutes National Forest, see the Forest-wide Species Assessment (USDA FS 2012r).

The red-tailed hawk is not on any federal, state, or other conservation list. Globally, the population is increasing and has no substantial threats (NatureServe 2019). Nationally, the population is increasing or stable in most areas (NatureServe 2019). In Oregon, red-tailed hawks are secure; the population is not decreasing (NatureServe 2019, USDA FS 2012r).

Through the Forest-wide assessment, red-tailed hawk reproductive habitat was mapped across the entire Deschutes National Forest, keying in on mature trees, usually at a forest edge or near an opening in canopy with open crowns. Table 28 summarizes this data.

Table 28. Red-Tailed Hawk Reproductive Habitat within the Greater Suttle Lake Vegetation Management Project Area, Lower Lake Creek Subwatershed, Upper Metolius River Watershed, and Across the Deschutes National Forest.

Acres of Red-Tailed Hawk Habitat in the Project Area	Acres of Red-Tailed Hawk Habitat in the Lower Lake Creek Subwatershed	Acres of Red-Tailed Hawk Habitat in the Upper Metolius River Watershed	Acres of Red-Tailed Hawk Habitat on the Forest
226	1,903	18,399	168,126 acres
0.1% of all red-tailed hawk habitat on the Forest.	1% of all red-tailed hawk habitat on the Forest	11% of all red-tailed hawk habitat on the Forest	10% of the entire Forest

Approximately 226 acres of red-tailed hawk reproductive habitat exists within the project area, which is 0.1% of the total Forest acres. Within the Lower Lake Creek Subwatershed approximately 1,903 acres occurs, and 18,399 acres occurs within the Upper Metolius River Watershed. No red-tailed hawk nests occur within or adjacent to the project area.

Environmental Consequences

Direct and Indirect Impacts

The project would impact 226 acres of mapped red-tailed hawk habitat by hazard/danger tree removal. A majority of these acres are within the campgrounds/organizational camps and adjacent to roads, where human disturbance is high and deter red-tailed hawks from potentially nesting there. Although potential nest trees would be removed, large trees would continue to persist within and adjacent to the project area.

If the project occurs during the breeding season (March 1 – August 31), hazard/danger tree removal, pre-commercial thinning, fuels activities including piling and burning, and Camp Tamarack power line burial could have direct, negative impacts to nesting red-tailed hawks that may be within or adjacent to active units. Disturbance during this time could result in nest failure (noise disturbance) or direct loss of individuals (from tree removal or adults away from the nest for too long).

Other activities including planting, transplanting, seeding, and boraxing cut trees, would likely have negligible disturbance impacts to individuals.

Cumulative Effects

This project would add incrementally to reasonably foreseeable actions of removal of potential nest trees. Danger tree removal along Highway 20 and danger and hazard tree removal within and adjacent to the project area would continue to occur as trees continue to succumb to the diseases that have prompted this project. The removal would not be at the levels as this project, but would be an occasional tree. Therefore, cumulative impacts are expected to the red-tailed hawk from this project, but the degree of impact would be immeasurable as the amount of trees and where they are is not known at this time. There is still habitat within the project area that is not being treated where potential roost/nest trees occur.

Project Design Criteria/Mitigation Measures

To prevent disturbance of and/or loss of nesting red-tailed hawks and their habitat during breeding season

●No disturbing activities (danger/hazard tree removal, pre-commercial thinning, piling, burning, powerline burial, etc.) within ¼ mile and/or line of sight from any active nest if one is found during implementation of this project from March 1 – August 31 (WL-3).

●The project wildlife biologist or Sisters District wildlife biologist will be contacted immediately if new, active raptor nests are discovered or raptors are sighted exhibiting territorial behavior during layout, implementation, or post-sale activities. All activities would cease for a radius of at least 375 feet around the nest site until a biologist evaluates the nest site. Appropriate restrictions would be applied before activities are permitted to continue. Core areas would be established around the new site if it were located. Core areas may be located both inside and outside of treatment unit boundaries.

Consistency

Wildlife standard and guidelines WL-2 and WL-3 will be assessed (Table 29). This project would be consistent with the Forest Plan by adhering to the following Standards and Guidelines:

Table 29. Standards and Guides for the Red-Tailed Hawk from the Forest Plan.

Standard and Guideline	Does Not Meet, Meets, Applicable, Not Applicable	Rationale
WL-2 – Maintain forested character at least 300 feet surrounding active nest sites.	Applicable if a nest is discovered	There are no known nests within the project area. If a nest is located, measures will be incorporated to meet this standard.
WL-2 – While timber management may occur, maintain at least 4 dominant overstory trees per acre suitable for nest and perch trees, favoring ponderosa pine.	Applicable if a nest is discovered	Healthy ponderosa pine would be retained within the project area. Trees would only be removed if a hazard.
WL-3 – Seasonal restrictions will be in effect for disturbing activities within ¼ mile of active nests from March 1 – August 31.	Applicable if a nest is discovered	Project Design Criteria are incorporated into this document if an active nest is discovered at any time during the implementation of this project.

This is written into this document as a Project Design Criteria and will further be addressed within the projects implementation plan.

Determination/Conclusion

It is expected that potential nest trees would be removed by the proposed treatments from this project. Although nesting habitat would be removed, the amount would be minor compared to that available within the subwatershed (impacting 12%), watershed (impacting 1%) and Forest (impacting 0.1%). Based on these impacts and that this species is ranked Secure (S5) by NatureServe (2019), the Greater Suttle Lake Vegetation Management Project is expected to have **a small negative impact to the red-tailed hawk and its habitat.** Because this project impacts a minimal amount of suitable habitat across the Forest (0.01%), the overall direct, and indirect impacts would result in a **small negative trend of habitat and increased disturbance**. This loss of habitat and increased disturbance would be insignificant at the scale of the Forest. The Greater Suttle Lake Vegetation Management Project is consistent with the Forest Plan, and **thus continued viability of the red-tailed hawk is expected on the Deschutes National Forest.**

OSPREY, *Pandion Haliaetus*
MIS

Measures: Effects to nesting habitat and disturbance effects.

Habitat Needs and Existing Condition

The osprey is specialized for catching fish and nesting occurs primarily along rivers, lakes, reservoirs, and seacoasts.

Preferred nest sites are usually snags or dead topped trees near or surrounded by water, presumably to deter mammalian predation (Ewins 1997). They also nest on a wide variety of artificial structures including utility poles, wharf pilings, windmills, microwave towers, chimneys, cell towers, off-shore duck blinds, buoys, and channel markers (Marshall et al. 2003, NatureServe 2019).

Using GIS, a one mile (1.61 km) buffer around large fish-bearing lakes and reservoirs and fish-bearing streams was used to model osprey habitat (see Table 30).

For the detailed assessment on osprey for the Deschutes National Forest, see the Forest-wide Species Assessment (USDA 2012o).

Table 30. Osprey Reproductive Habitat within the Greater Suttle Lake Vegetation Management Project Area, Lower Lake Creek Subwatershed, Upper Metolius River Watershed, and Across the Deschutes National Forest.

Acres of Osprey Habitat in the Project Area	Acres of Osprey Habitat in the Lower Lake Creek Subwatershed	Acres of Osprey Habitat in the Upper Metolius River Watershed	Acres of Osprey Habitat on the Forest
249	4,059	70,636	495,567
0.05% of all osprey habitat on the Forest.	0.8 % of all osprey habitat on the Forest	14% of all osprey habitat on the Forest	40% of the entire Forest

There are no known active osprey nest sites within the project area or within ¼ mile of the project area.

Environmental Consequences

Direct and Indirect Impacts

The entire project area is potential nesting habitat for osprey. This project would be removing potential nest and roost trees across the entire project area. The loss of these large trees would have long-term impacts on osprey habitat in the project area. Additional nesting and roosting habitat is available adjacent to the project area for osprey.

If the project occurs during the breeding season (April 1 – August 31), tree removal, pre-commercial thinning, piling, burning, and power line burial at Camp Tamarack could have direct, negative impacts to nesting osprey if they occur. Disturbance during this time could result in nest failure (noise disturbance) or direct loss of individuals (adults away from the nest for too long).

Other aspects of the project including planting, transplanting, seeding, and boraxing cut trees would have negligible impacts to the norther osprey.

Cumulative Impacts

This project would add incrementally to reasonably foreseeable actions of removal of potential roost and nest trees. Future danger and hazard tree removal would continue to occur within and adjacent to the project area as trees continue to succumb to the diseases that have prompted this project. The removal would not be at the levels as this project, but would be an occasional tree. Therefore, cumulative impacts are expected to the osprey from this project, but the degree of impact would be immeasurable as the amount of trees and where they are is not known at this time. There are still areas around Suttle Lake, Scout Lake, and Dark Lake that are not being treated where potential roost/nest trees occur.

Project Design Criteria/Mitigation Measures

●If an active osprey nest is discovered during implementation of this project, disturbing activities (tree removal, pre-commercial thinning, piling, burning, power line burial, etc.) would not occur within ¼ mile and/or line of site during the osprey nesting season from April1 – August 31 (WL-3).

●The project wildlife biologist or Sisters District wildlife biologist would be contacted immediately if new, active raptor nests are discovered or raptors are sighted exhibiting territorial behavior during layout, implementation, or post-sale activities. All activities would cease for a radius of at least 375 feet around the nest site until a biologist evaluates the nest site. Appropriate restrictions would be applied before activities are permitted to continue. Core areas would be established around the new site if it were located. Core areas may be located both inside and outside of treatment unit boundaries.

Consistency

Wildlife standard and guidelines WL-2 and WL-3 would be assessed (Table 31). This project would be consistent with the Forest Plan by adhering to the following Standards and Guidelines:

Table 31. Standards and Guides for Osprey from the Forest Plan.

Standard and Guideline	Does Not Meet, Meets, Applicable, Not Applicable	Rationale
WL-2 – Maintain forested character at least 300 feet surrounding active nest sites.	Applicable is a nest is discovered.	There are no known nests within the project area. If a nest is located, measures will be incorporated to meet this standard.
WL-2 – While timber management may occur, maintain at least 4 dominant overstory trees per acre suitable for nest and perch trees, favoring ponderosa pine.	Applicable is a nest is discovered.	Healthy ponderosa pine would be retained within the project area. Trees would only be removed if a hazard.
WL-3 – Seasonal restrictions will be in effect for disturbing activities within ¼ mile of active nests from April 1 – August 31.	Applicable is a nest is discovered.	Project Design Criteria are incorporated into this document if an active nest is discovered at any time during the implementation of this project.

This is written into this document as a Project Design Criteria and will be further addressed within the projects implementation plan.

Determination/Conclusion

Implementation of the Greater Suttle Lake Vegetation Management Project would remove potential nest and roost trees within the entire project area. If a nest is discovered, activities that would occur within ¼ miles of an active nest (April 1 – August 31) could have a small negative impact to nesting osprey.

Because this project impacts a minimal 0.05% of suitable habitat across the Forest, the overall direct and indirect effects would result in a small negative trend of habitat and increased disturbance. This loss of habitat and increased disturbance would be insignificant at the scale of the Forest. The Greater Suttle Lake Vegetation Management Project is consistent with the Forest Plan (by incorporating project design criteria for protection during the nesting season), thus continued viability of the osprey is expected on the Deschutes National Forest.

ROCKY MOUNTAIN ELK, *Cervus elephas* AND MULE DEER, *Odocoileus hemionus* MIS

Measures: Acres of hiding cover affected.

Habitat Needs and Existing Condition

Deer: The most important deer habitats in Eastern Oregon are summer habitat, including areas needed for reproductive activities and winter habitat. Preferred summer habitat provides adequate forage to replace body reserves lost during winter and to maintain normal body functions. Summer habitat also includes areas specifically used for reproductive purposes. These areas must have an adequate amount of succulent vegetation, offering highly nutritional forage. In addition, areas used for reproduction should

provide isolation from other deer, security from predators and minimal competition from other ungulates. Summer habitat areas are common throughout Eastern Oregon, and can be found in areas varying from lowland agricultural lands to high elevation mountain areas. Winter habitat is found predominately in lower elevation areas of Eastern Oregon. These areas usually have minimal amounts of snow cover and provide a combination of geographic location, topography, and vegetation that provides structural protection and forage. Due to the low nutritive values of available forage during the winter, deer are forced to rely on their body reserves acquired during the summer for winter survival (USDA 2012l).

The project area provides summer range for mule deer.

Elk: The Deschutes NF has one primary allocation for the management of elk habitat on forest. Eleven Key Elk Habitat Areas (KEHAs) occur across the forest to provide optimum habitat conditions for both summering and wintering elk herds. No KEHAs occur within the project area or the watershed and therefore no specific standards and guides apply to the project. No calving is known within the project area. Although elk hiding cover was only mapped within KEHA's, the discussion of hiding cover in the deer section above is applicable for elk. The project area provides summer habitat for elk.

For the detailed assessment on the elk for the Deschutes National Forest, see the Forest-wide Species Assessment (USDA 2012s).
There is currently no mapped hiding cover within the project area, with very little occurring within the Lower Lake Creek Subwatershed. Hiding cover does occur, mostly in the form of shrubs and smaller trees ($\leq$ 9" dbh).

Environmental Consequences

Direct and Indirect Impacts

The pre-commercial thinning of small trees in Unit 9 may reduce a minor amount of hiding cover next to the road. A majority of hiding cover available within the project area is provided by topography and shrubs.

Deer and elk may occur in the area, but with the amount of recreational use and human disturbance, these animals may just move through or utilize areas with less disturbance outside the campgrounds and the organizational camps. There may be temporary disturbance to these animals with tree removal and other project activities, but the disturbance would be short-term while the actions are occurring. These animals are wide-ranging and would not be permanently displaced by actions associated with this project.

Cumulative Impacts

This project would not add incrementally to reasonably foreseeable actions of removal of hiding cover within or adjacent to the project area, therefore, cumulative impacts are not expected to occur to deer or elk with implementation of the Greater Suttle Lake Vegetation Management Project.

Project Design Criteria/Mitigation Measures

N/A

Consistency

N/A

Determination/Conclusion

Implementation of the Greater Suttle Lake Vegetation Management Project would potentially remove a minor amount of hiding cover that occurs as small trees within the project area, but would not deter use of the project area. Deer and elk are expected to continue to utilize the project area, but may be displaced short-term while project activities are occurring. This short-term displacement would not impact deer or elk.

Northwest Forest Plan/Survey and Manage Species

In 1994 the Northwest Forest Plan (NWFP) developed a system of reserves, Aquatic Conservation Strategy, and various standards and guidelines for the protection of old growth associated species (USDA FS 1994). Mitigation measures were also included for species that were rare, or thought to be rare due to a lack of information about them. It was unknown whether the major elements of the NWFP would protect these species. These species collectively known as Survey and Manage species were included in standards and guidelines under Survey and Manage, Protection Buffers, and Protect Sites from Grazing. In January 2001, a Record of Decision for Amendments to the Survey and Manage, Protection Buffer and other Mitigation Measures Standards and Guidelines (2001 amendment) was signed. This decision amended the NWFP Survey and Manage and related standards and guidelines to add clarity, remove duplication, increase or decrease levels of management for specific species based on new information, and established a process for making changes to management for individual species in the future (USDA 2001 pgs. ROD-1-3). Several attempts to remove Survey and Manage Species from management were made with an EIS in 2004 and again in 2007 and 2011. The Forest Service was sued and decisions were overturned and/or entered into settlement negotiations. A letter from the Regional Forester was issued May 13, 2014 and provided direction for implementing the 2001 amendment. For this project the direction provided in 2(b) was followed.

2.(b) The January 2001 ROD standards and guidelines and the December 2003 species list, except for the red tree vole which remains as Category C across its range, and/or the four categories of projects exempt from the Survey and Manage standards and guidelines as stipulated by Judge Pechman (October 11, 2006, "Pechman exemptions".) See Enclosure 3 for the December 2003 species list with red tree vole as Category C across its range.

The 2011 Consent Decree updated the species list and included species specific mitigations as well as retained exemptions from a previous settlement agreement. The four categories of projects exempt from the Survey and Manage standards and guidelines as stipulated by Judge Pechman (October 11, 2006, "Pechman exemptions") are:

a) Thinning projects in stands younger than 80 years old;
b) Replacing culverts on roads that are in use and part of the road system, and removing culverts if the road is temporary or to be decommissioned;
c) Riparian and stream improvement projects where the riparian work is riparian planting, obtaining material for placing in-stream, and road or trail decommissioning; and where the stream improvement work is the placement of large wood, channel and floodplain reconstruction, or removal of channel diversions; and

d) The portions of projects involving hazardous fuel treatments where prescribed fire is applied. Any portions of a hazardous fuel treatment project involving commercial logging would remain subject to the survey and manage requirements except for thinning of stands younger than 80 years old under subparagraph (a) of this paragraph.

Survey and Manage animal species for the Deschutes National Forest includes the great gray owl, the Crater Lake tightcoil snail, and the evening fieldslug.

Crater Lake Tightcoil - In April of 2004 the Crater Lake tightcoil was added to the Region 6 sensitive species list. This species was addressed in the BE section of this report. Pre-disturbance surveys are not required. This project, where actions would occur within Crater Lake tightcoil habitat, is covered under Pechman's exemptions.

Great Gray Owl - The great gray owl was formerly a "Protection Buffer" category species in the 1994 Northwest Forest Plan. With the 2001 decision its status was changed to a "Survey and Manage" standard and guideline species and surveys are deemed practical. Habitat occurs within the project area, but since the acres of potential nesting habitat is low, and that the disturbance from recreation and roads is high adjacent to the habitat, surveys were not warranted. The great gray owl is also considered in the MIS section of this report.

Evening Fieldslug - "The Evening Fieldslug is associated with perennially wet meadows in forested habitats; microsites include a variety of low vegetation, litter and debris; rocks may also be used as refugia. Little detail is known about exact habitat requirements for the species, due to the limited number of verified sites. However, this species appears to have high moisture requirements and is almost always found in or near herbaceous vegetation at the interface between soil and water, or under litter and other cover in wet situations where the soil and vegetation remain constantly saturated. Because of the apparent need for stable environments that remain wet throughout the year, suitable habitat may be considered to be limited to moist surface vegetation and cover objects within 30 m. (98 ft.) of perennial wetlands, springs, seeps and riparian areas. Areas with coastal fog may allow the species to occupy habitats farther from open water. Down wood may provide refugia sites for the species that remain more stable during drier periods of the year than the general habitat." (Duncan 2005). This project, where actions would occur within evening field slug habitat, is covered under Pechman's exemptions.

Environmental Consequences

Direct and Indirect Impacts

Approximately 1.6 acres of potential habitat could be impacted by this project. Felling and leaving or felling and removing trees adjacent to the Suttle Lake, Link Creek, and within the designated wetlands within Link Creek Campground, could crush any evening fieldslugs that may be present. Falling and leaving trees would also provide down wood habitat and refugia sites for this species during the drier periods.

Cumulative Impacts

The impacts to mollusk habitat from this project will add incrementally to ongoing and reasonably foreseeable actions. Large tree placement would occur within Link Creek in the near future. There could be 10-20 trees placed within Link Creek from where it enters Suttle Lake to the Forest boundary, potentially impacting up to an additional 0.13 acres of habitat.

Project Design Criteria/Mitigation Measures

●To minimize disturbance of habitat and direct loss of mollusk species, no equipment would be allowed directly within suitable habitat (Link Creek Campground). If this cannot be avoided, conduct the activity when the ground is frozen.

Consistency

This project meets the provisions of the *2001 Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (USDA and USDI 2001). Survey were not required as this project is covered under Pechman's exemptions.

Determination/Conclusion

Implementation of the Greater Suttle Lake Vegetation Management Project would potentially impact 1.6 acres of evening field slug habitat adjacent to Suttle Lake. Removing hazard trees and cutting and leaving trees, could alter the microclimate of the site negatively impacting mollusks that may occur or even directly crush them. These actions would also add substrate that would provide habitat for this species.

Focal Landbird Species/Birds of Conservation Concern

TABLE 32. Landbird Species and Birds of Conservation Concern with Suitable Habitat In/Near the Project Area.

Species	Status	Basic Habitat Description	*Consistent with Conservation Strategy (Y/N/NA)	Habitat Increased, Decreased, or Unchanged (+/-/=)
**Northern bald eagle	BCC	Lakes, large trees, snags	NA	-
Brown creeper *Certhia americana*	CEFS	Mixed conifer with large trees	N	-
Flammulated owl *Psiloscops flammeolus*	CEFS, BCC	Mixed conifer with grassy openings and dense thickets	N	-
Hermit thrush *Catharus guttatus*	CEFS	Mixed conifer, Multi-layer mixed conifer with dense canopy	N	-
**Lewis' woodpecker *Melanerpes lewis*	CEFS, BCC	CEFS – Patches of old burned ponderosa pine forest	Y	=
Olive-sided flycatcher *Contopus cooperi*	CEFS	Mixed conifer with edges and openings created by wildfire	Y	=
**White-headed woodpecker *Picoides albolarvatus*	CEFS, BCC	Large patches of old ponderosa pine forest with large snags	Y	=
Williamson's sapsucker *Sphyrapicus thyroideus*	CEFS, BCC	Mixed conifer – Large snags	N	-

CEFS – Cascades East Slope Focal Species
BCC – Birds of Conservation Concern

*****APPLICABLE TO PIF BIRD CONSERVATION FOCAL SPECIES ONLY (CEFS)

** The northern bald eagle is listed as a BCC, while the Lewis' woodpecker and white-headed woodpecker are listed as both focal landbird species and BCC. These species are analyzed under the Regional Forester Sensitive Species in the BE portion of this document.

Birds of Conservation Concern (BCC)

In January 2001, President Clinton issued an executive order on migratory birds directing federal agencies to avoid or minimize the negative impact of their actions on migratory birds, and to take active steps to protect birds and their habitat. Within two years, federal agencies were required to develop a Memorandum of Understanding (MOU) with the U.S. Fish and Wildlife Service to conserve migratory birds including taking steps to restore and enhance habitat, prevent or abate pollution affecting birds, and incorporating migratory bird conservation into agency planning processes whenever possible. Toward meeting this end the U.S. Fish and Wildlife Service developed the Birds of Conservation Concern in 2002 (updated in 2008) and released the U.S. Shorebird Conservation Plan in 2004 (updated in 2007).

The "Birds of Conservation Concern 2008" (BCC) (USDI FWS 2008) identifies species, subspecies, and populations of all migratory non-game birds that without additional conservation protection actions are likely to become candidates for listing under the Endangered Species Act of 1973. While all of the bird species included in the BCC are priorities for conservation action, the list makes no finding with regard to whether they warrant consideration for ESA listing. The goal is to prevent or remove the need for additional ESA bird listings by implementing proactive management and conservation plans. The U.S. Shorebird Conservation Plan (USDI FWS 2004, revised 2007) updated the 2001 Plan with new information and developed a list of U.S. and Canadian shorebirds considered highly imperiled or of high conservation concern. Conservation measures were not included but these lists should be consulted to determine reasons for conservation concern.

Bird Conservations Regions (BCRs) were developed based on similar geographic parameters (Figure 6). One BCR encompasses the analysis area – BCR 9, Great Basin.

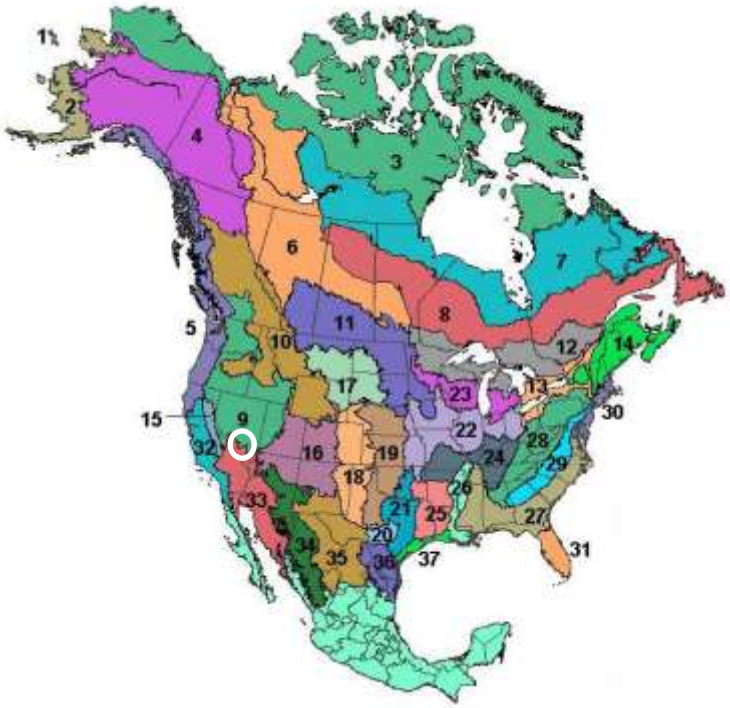

Figure 6. USFWS Bird Conservations Regions

Landbird Conservation Strategy and Landbird Focal Species

The Forest Service has prepared a Landbird Strategic Plan (January 2000) to maintain, restore, and protect habitats necessary to sustain healthy migratory and resident bird populations to achieve biological objectives. The primary purpose of the strategic plan is to provide guidance for the Landbird Conservation Program and to focus efforts in a common direction. On a more local level, individuals from multiple agencies and organizations within the Oregon-Washington Chapter of Partners in Flight participated in developing a publication for conserving landbirds in this region. A Conservation Strategy for Landbirds of the East-Slope of the Cascade Mountains in Oregon and Washington (CEFS) was published in June 2000 (Altman 2000).

The appropriate Bird Conservation Plan and BCC species list for the project area was reviewed. Those species and habitats that are within the project area have been incorporated into this report with effects disclosed below in Table 33. Bird Conservation Regions (BCRs) have been developed based on similar geographic parameters as shown above in Figure 6. One BCR encompasses the project area, BCR9 – Great Basin. The Conservation Strategy for Landbirds of the East-Slope of the Cascade Mountains in Oregon and Washington (Altman 2000) has been reviewed with project consistency noted below in Table 33. Appendix B, Table 1 lists all of the species within BCR 9 and their preferred habitats.

TABLE 33. Focal Landbird Species and BCC Considered for Analysis and Disclosure of Effects.

Species	Status	Basic Habitat Description	Consistent with CEFS Conservation Strategy (Y/N/NA)	Habitat Increased, Decreased, or Unchanged (+/-/=)
Brown creeper *Certhia americana*	**CEFS**	**Mixed conifer with large trees**	**N**	**-**
CONSERVATION STRATEGY: (Mixed Conifer) Use understory prescribed burning and/or thinning when and where appropriate to reduce fuel loads and accelerate development of late seral conditions; retain all large trees, especially ponderosa pine >18 in dbh; initiate snag creation and recruitment where necessary; retain all snags and broken top trees >10 in dbh in harvest units; implement road closures where necessary to limit access to snags; minimize actions that increase susceptibility to invasion of exotic and noxious weeds and erosion; discontinue firewood cutting or restrict to trees <15 in dbh where snag objectives are not being met; permit stand-replacing wildfires to burn where possible. (Large Trees) Manage for large diameter trees through wider tree spacing and longer rotation periods; eliminate or restrict fuelwood cutting in suitable or potential habitat; retain all snags >10 in dbh and all ponderosa pine trees >18 in dbh. **POTENTIAL EFFECTS:** Dead and diseased trees of all species and sizes would be removed if adjacent to roads (100 - 150 feet) and within and adjacent to developed recreation sites and organizational camps (up to 150 feet adjacent). This action would degrade/remove suitable nesting habitat.				
Flammulated owl *Psiloscops flammeolus*	**CEFS, BCC**	**Mixed conifer with grassy openings and dense thickets**	**N**	**-**
CONSERVATION STRATEGY: (Mixed Conifer) Use understory prescribed burning and/or thinning when and where appropriate to reduce fuel loads and accelerate development of late seral conditions; retain all large trees, especially ponderosa pine >18 in dbh; initiate snag creation and recruitment where necessary; retain all snags and broken top trees >10 in dbh in harvest units; implement road closures where necessary to limit access to snags; minimize actions that increase susceptibility to invasion of exotic and noxious weeds and erosion; discontinue firewood cutting or restrict to trees <15 in dbh where snag objectives are not being met; permit stand-replacing wildfires to burn where possible. (Grassy Openings & Mixed Thickets) Target conservation efforts near grassland or dry meadow openings; avoid insect control spraying near known nest areas or suitable habitat; in restoration efforts, leave patches of dense sapling thickets to function as roost sites; retain large >12in dbh snags during silvicultural practices; where snags with nesting cavities are a limiting factor and the habitat is otherwise suitable, create snags by fungal, inoculation, topping, girdling, etc.; where dense roosting thickets are limited within potential or suitable habitat, avoid forest practices that remove brush from the understory; where grassy openings in potential or suitable habitat are being encroached on by shrubs and trees, initiate actions such as manual removal and prescribed fire to maintain these openings; eliminate or restrict fuelwood cutting and application of pesticides in suitable or potential flammulated owl habitat; use nest boxes as a short-term supplement where restoration activities are occurring. **POTENTIAL EFFECTS:** The flammulated owl does have the potential to occur within the project area. Dead and diseased trees of all species and sizes would be removed if adjacent to roads (100-150 feet) and developed recreation sites and organizational camps (150 feet from the boundary). This action would degrade/remove suitable nesting habitat.				

Species	Status	Basic Habitat Description	Consistent with CEFS Conservation Strategy (Y/N/NA)	Habitat Increased, Decreased, or Unchanged (+/-/=)
Hermit thrush *Catharus guttatus*	**CEFS**	**Multi-layered conifer with dense canopy**	**N**	**-**

CONSERVATION STRATEGY:

(Mixed Conifer) Use understory prescribed burning and/or thinning when and where appropriate to reduce fuel loads and accelerate development of late seral conditions; retain all large trees, especially ponderosa pine >18 in dbh; initiate snag creation and recruitment where necessary; retain all snags and broken top trees >10 in dbh in harvest units; implement road closures where necessary to limit access to snags; minimize actions that increase susceptibility to invasion of exotic and noxious weeds and erosion; discontinue firewood cutting or restrict to trees <15 in dbh where snag objectives are not being met; permit stand-replacing wildfires to burn where possible.

(Multilayered & Dense Canopy) Retain tracts of forest as unmanaged or lightly managed to ensure structural diversity.

POTENTIAL EFFECTS:

The hermit thrush does have the potential to occur within the project area. Dead and diseased trees of all species and sizes would be removed if adjacent to roads (100-150 feet) and developed recreation sites and organizational camps (150 feet from the boundary). This action would degrade/remove suitable nesting habitat.

Olive-sided flycatcher *Contopus cooperi*	**CEFS**	**Mixed conifer with edges and openings created by wildfire**	**N**	**-**

CONSERVATION STRATEGY:

(Mixed conifer edges and openings created by wildfire) Use prescribed fire along with manual understory clearing where appropriate to create a patchy mosaic of burned forest. Increase the level of acceptable opportunities to allow wildfires to burn or ignite fires when conditions and opportunities exist. Where possible, prohibit salvage logging to occur in post-fire habitat. For protection of snags: close roads or restrict fuel wood permits in areas where large snags are present, and actively enforce fuel wood regulations to minimize removal of snags. Eliminate or minimize pesticide spraying near nesting pairs, which may reduce insect prey base. Retain standing dead or diseased trees where they occur. If snags are limiting, create suitable snags through girdling, topping, etc. Use underburning or other techniques to promote a shrubby understory for insect production; minimize brush control. Selective logging can be used to increase suitability of habitat as long as sufficient large living and dead trees are retained.

POTENTIAL EFFECTS:

The olive-sided flycatcher does have the potential to occur within the project area. Dead and diseased trees of all species and sizes would be removed if adjacent to roads (100-150 feet) and developed recreation sites and organizational camps (150 feet from the boundary). This action would degrade/remove suitable nesting habitat.

Williamson's sapsucker *Sphyrapicus thyroideus*	**CEFS, BCC**	**Mature/old growth conifer forest with open canopy**	**N**	**-**

CONSERVATION STRATEGY:

(Mixed Conifer) Use understory prescribed burning and/or thinning when and where appropriate to reduce fuel loads and accelerate development of late seral conditions; retain all large trees, especially ponderosa pine >18 in dbh; initiate snag creation and recruitment where necessary; retain all snags and broken top trees >10 in dbh in harvest units; implement road closures where necessary to limit access to snags; minimize actions that increase susceptibility to invasion of exotic and noxious weeds and erosion; discontinue firewood cutting or restrict to trees <15 in dbh where snag objectives are not being met; permit stand-replacing wildfires to burn where possible.

Species	Status	Basic Habitat Description	Consistent with CEFS Conservation Strategy (Y/N/NA)	Habitat Increased, Decreased, or Unchanged (+/-/=)
(Large Snags) In managed forests, extend rotation ages to provide snags of sufficient size - retain these snags and recruit replacement snags in each harvest entry; in harvest units and riparian buffer zones, retain the largest live trees, particularly dying or defective trees, through rotations as recruitment snags for potential nest sites if nesting is documented in logged stands; retain known or suitable nesting and roosting snags from all harvest and salvage activities and restrict access for fuelwood cutters; if snags have not been retained or are insufficient in number, create snags through blasting tops or inoculation with heart rot if size of trees meets species requirements. **POTENTIAL EFFECTS:** The Williamson's sapsucker does have the potential to occur within the project area. Dead and diseased trees of all species and sizes would be removed if adjacent to roads (100-150 feet) and developed recreation sites and organizational camps (150 feet from the boundary). This action would degrade/remove suitable nesting habitat.				

CEFS – Cascades East Slope Focal Species; BCC – Birds of Conservation Concern

SNAGS AND DOWN WOOD

Dead wood (standing or down) plays an important role in overall ecosystem health, soil productivity and numerous species' habitat. A snag is defined as a dead tree that is over 10" diameter at breast height (dbh) and taller than 10 feet. Down woody material is considered to be dead and down material that is greater than 5 inches in diameter (Mellen et. al 2012). This dead wood habitat is crucial in the continuation of species that depend on snags and logs for all or parts of their life cycle (Laudenslayer et al. 2002). Bird and mammal species rely on dead wood for dens, nests, resting, roosting, and/or feeding for all or parts of their life cycle. The most notable species using snags and down woody material are the primary cavity nesters (e.g. woodpeckers and nuthatches) that excavate nest cavities in decayed wood in standing trees. Vacated cavities are subsequently used by many other birds, bats, marten, and small mammals (i.e., secondary cavity users).

Snags come in all sizes and go through breakdown and decay processes that change them from standing hard to soft, then on the ground to continue decaying into soil nutrients. Not every stage of the snag's decay stage is utilized by the same species, but rather a whole array at various stages or conditions. In forested environments, 93 wildlife species are associated with snags. This includes 4 amphibians, 63 birds, and 26 mammal species (Rose et al. 2001).

Logs are an important component on the landscape. They provide organic and inorganic nutrients in soil development, provide microhabitats for invertebrates, plants, amphibians, and other small vertebrates, and provide structure for riparian associated species in streams and ponds. It has been shown that size, distribution, and orientation may be more important than tonnage or volume. Small logs provide escape cover or shelter for small species. Small mammals use logs extensively as runways, making these areas important for birds of prey or other mammals that feed on these small mammals. It is still unknown what levels of down woody material are needed to provide quality habitat for associated species. Too much down material may impede travel by big game and present a fire hazard. However, increased levels also provide cover for small invertebrates and may protect seedlings from browse and scorching. Larger-sized logs are also used more often and by a larger variety of species than smaller logs (Bull et al. 1997).

Snag and down wood levels are best analyzed at scales of subwatersheds or greater (Mellen-McLean et al. 2012). For the purposes of this project, a DecAid analysis will not be conducted as the trees that are to be

removed are hazard and danger trees and need to be removed for human safety and to prevent damage to structures within the campgrounds and organized camps. Analyzing snags and down wood at a large scale would not change the purpose of this project and the requirement the Forest Service has for the removal of hazard and danger trees. Numbers of dead and diseased trees have been calculated within each unit of the project area and can be found in Table 34, and discussed in detail in the project silviculturist report.

Existing Condition

Table 34 below displays the numbers of danger/hazard trees as they occur across the project area within specific areas/units.

Table 34. Numbers of Danger and Hazards Trees and those Trees with a Mistletoe Hazard Rating of 5/6 (Future Snags).

Area and Unit Number	Dead Tree Danger/Hazards (7,8)	Live Tree Danger/Hazards (7,8)	Mistletoe Rating 5,6 white fir	Mistletoe Rating 5,6 Douglas-fir	Totals
Link Cr. CG U-1 (16 ac.)	9	1	22	32	64
South Shore CG U-2 (29 ac.)	29	13	39	127	208
Blue Bay CG U-3 (14 ac.)	31	1	17	44	93
Scout Lake CG U-4 (27 ac.)	9	21	7	54	91
Methodist Camp U-5 (33 ac.)	133	71	205	443	852
Camp Tamarack U-6 (19 ac.)	111	31	75	61	278
Roadside U -7 and 8 (111 ac.)	167	29	65	120	381
Totals – 249 ac.	**489**	**167**	**430**	**881**	**1,967**

The average number of snags per acre is 2 snags/acre and live tree danger/hazards are 0.7 trees/acre. Future (mistletoe rating of 5/6) white fir snags are at 1.7 trees/acre, while Douglas-fir is at 3.5 trees/acre for a total of 5.2 trees/acre.

Environmental Consequences

Direct and Indirect Effects

The proposed action would remove dead and diseased trees across the 249 acres project area. All hazard/danger trees would be cut (dead, 2 trees/acre and diseased 0.7 trees/acre), along with trees with a mistletoe rating of 5/6 (5.2 trees/acre). A majority of these cut trees would be removed from the site. Where appropriate, it is possible for some trees to be left on the ground within the campgrounds and organizational camps and adjacent to the roads. For species requiring snags and down wood, this would result in immediate loss of current snag habitat and a long-term reduction in future snag habitat and downed wood habitat. Existing wood would be retained.

Cumulative Effects

This project would add incrementally to reasonably foreseeable actions of removal of potential habitat. Danger tree removal along Highway 20 as well as future danger and hazard tree removal within and adjacent to the project area would occur as trees continue to succumb to the diseases that have prompted this project. The removal would not be at the levels as this project, but would be an occasional tree. Therefore, cumulative impacts are expected to habitat for snag and down wood dependent species from this project, but the degree of impact would be immeasurable as the amount of trees and where they are is not known at this time. There are still areas within and adjacent to the project area as well as within the subwatershed that are not being treated where snags and down wood occur.

Project Design Criteria/Mitigation Measures

SNAGS/DOWN WOOD

●The Deschutes National Forest LRMP states that *snags determined to be safety hazards in areas of concentrated public use should be* ***topped*** (a minimum of 15" dbh, but prefer 20"dbh or larger) ***or removed*** (M11-31). This could also pertain to diseased trees that are considered a danger/hazard tree. Potential topping of trees would be dependent on several factors including where the trees are located, the size, and the condition of the tree.

●Nest boxes should be placed in campgrounds and other places of concentrated public use if all dead and diseased trees are removed, to allow observation opportunities of cavity-nesting wildlife (M11-31). The number and placement of nest boxes would be dependent upon post-treatment conditions.

●Within campgrounds and organizational camps, where appropriate, leave felled hazard trees (preferably >20" dbh) if they can be used to segregate campsites, protect riparian habitat resources, prevent soil erosion, or deter user created trails.

●Within 100 feet of lakeshores (where appropriate) and within late-successional reserves, hazard/danger trees ≥20 inches dbh should be felled but left in place if current fuel loadings are not in extreme excess and pose a fuel hazard.

●Within roadside units, where appropriate, fell and leave danger trees if they are cull trees.

●All down woody material that is currently on the ground within the project area should be left in place if it does not impede the function of the area such as in the campgrounds and organizational camps. The preferable size class to retain would be downed wood >20" dbh.

Consistency

Wildlife standards and guidelines M11-31 will be assessed. This project would be consistent with the Forest Plan by adhering to the following Standards and Guidelines in Table 8:

Table 8. Standards and Guides for Wildlife in MA 11 from the Forest Plan.

Standard and Guideline	Does Not Meet, Meets, Applicable, Not Applicable	Rationale
M11-31– Snags determined to be safety hazards should be topped or removed. Nest boxes should be placed in campgrounds and other places of concentrated public use to allow observation opportunities of cavity nesting wildlife.	Applicable	Dead and diseased trees occur within the campgrounds and M11 allocations adjacent to the campgrounds.

This is written into this document as a Project Design Criteria and will further be addressed within the projects implementation plan.

Determination/Conclusion

Removal of snags and diseased trees within the 249 acre project area would reduce current and future snag habitat as well as future down wood for the long-term. There would continue to be trees that succumb to the disease factors that are in the environment in the Suttle Lake area, and these trees would continue to be removed as they become a danger/hazard. With this area focusing on recreation, management of snags and down wood is not appropriate. Although the reduction of this habitat would have a negative effect on the wildlife species that depend on them, the habitat is available adjacent to the project area and throughout the subwatershed. Existing down wood would be retained within the project area.

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APPENDIX A

Rationale for Sensitive Species and Management Indicator Species Not Considered in Detail

The following Sensitive Species and Management Indicator Species were not considered for analysis due to a lack of habitat in or near the Greater Suttle Lake Vegetation Management project area. A lack of habitat assumes a lack of presence. Therefore, the project's proposed action and alternatives would not impact the viability of these species on the Deschutes National Forest.

Sensitive Species

Harlequin duck
The harlequin duck nests along fast-moving rivers and mountain streams on rocky islands or banks. It requires relatively undisturbed, low gradient, meandering mountain streams with dense shrubby riparian areas (greater than 50% streamside shrub cover), and woody debris for nesting and brood rearing; also needs mid-stream boulders or log jams and overhanging vegetation for cover and loafing; indicator of high water quality (Spahr et al. 1991). Fast moving rivers and rocky islands or banks do not occur within the project area. Implementation would have **No impact** on the **harlequin duck**.

Horned grebe
The horned grebe is a rare breeder east of the Cascades and favor semi-permanent ponds (Marshall et al. 2003). They nest among tall vegetation in shallow water on small and large lakes and ponds (approximately ¼ acre or larger), in calm waters of marshes, along rivers and streams. The highest breeding densities occur in pothole marshes of aspen woodlands. Outside the breeding season, horned grebes are found on bays, estuaries and seacoasts, and in migration commonly in inland freshwater habitats, especially lakes and rivers (NatureServe 2019). There is no tall vegetation in shallow water within the project area. Implementation would have **No impact** on the **horned grebe**.

Tule goose
Tule greater white-fronted geese use Oregon as a stop-over location during migration. They prefer marshes and feed more in lower elevation wetland habitat and less in agriculture fields (NatureServe 2019). There are no marshes or tules in the project area. Implementation would have **No impact** to the **tule goose**.

Yellow rail
The nesting habitat of the yellow rail in southcentral Oregon were described as marshes or wet meadows with an abundance of thin-leaved sedges, a layer of senescent (old) vegetation to conceal their nests, and water depths of 0.5 to 5 cm (Popper and Stern 2000). There are no marshes or wet meadows within the project area that would afford suitable habitat to nest in the project area. Implementation would have **No impact** to the **yellow rail**.

The yellow rail is currently a Species of Concern by the USFWS, classified as Sensitive Critical under Oregon's Sensitive Species Rule as developed by the Oregon Department of Fish and Wildlife, and a Sensitive Species by the Pacific Northwest Region of the Forest Service.

Northern waterthrush
The northern waterthrush inhabits riparian habitat, often with willow and alder (NatureServe 2019). This habitat occurs in minor amounts along a small riparian area and this habitat would not be impacted. This

species has not been seen in the Suttle Lake area. Implementation would have **No impact** on the **northern waterthrush**.

Tricolored blackbird
In Oregon, this species is restricted to breeding in southern Oregon and prefers to breed in freshwater marshes with emergent vegetation (cattails) or in thickets of willows or other shrubs (Csuti et al. 2001). In migration and winter they are found in open cultivated lands and pastures (NatureServe 2019). There are no marshes with emergent vegetation in the project area. Implementation would have **No impact** to the **tri-colored blackbird**.

Greater Sage Grouse
A detailed review of the taxonomy, genetics, habitat use, life history, range, distribution, and occurrence information for the Greater sage grouse is presented in the Proposed Rule (Federal Register 2015), available on the Internet at *http:// www.regulations.gov* under Docket No. FWS–R6–ES–2015–0146.

Sage grouse are found in foothills, plains, and mountain slopes where sagebrush is present and the habitat contains a mixture of sagebrush, meadows, and aspen in close proximity. Winter habitat (palatable sagebrush) is probably the most limited seasonal habitat in some areas (NatureServe 2019). Sage grouse are closely associated with big sagebrush habitat types and are commonly referred to as "sagebrush obligates" (USDI BLM 2010). During the spring and summer months they may use the fringes of open forest habitat types with good herbaceous understories. In winter, they depend upon low elevation big sagebrush habitats for survival. The project area is outside the known range for Greater sage grouse, therefore, implementation of the project would have "**no impact"** on greater sage grouse or its habitat.

Spotted Bat
Spotted bat habitat ranges from desert to sub-alpine meadows, including desert-scrub, pinyon-juniper woodland, ponderosa pine, mixed conifer forest, canyon bottoms, rims of cliffs, riparian areas, fields, and open pasture. Elevations range from sea level to 8,900 feet. Prominent rock features appear to be a necessary feature for roosting. Winter range and hibernacula are unknown for most its range, though the species has been captured year-round in the southern part of its range and it may be year-round in central Oregon with the exception of December and January. During summer, bats may travel from roosts in desert-scrub to forage in high elevation meadows, returning to roosts within an hour of dawn. These specific habitat types and landscape features do not occur within the project area. Implementation of any proposed actions would have "**no impact"** on the spotted bat.

Sierra Nevada red fox
Sierra Nevada red fox appear to be opportunistic predators and foragers, with a diet primarily composed of small rodents, but also including deer carrion (*Odocoileus hemionus*) (particularly in winter and spring) and manzanita berries (*Arctostaphylos nevadensis*) (particularly in fall) (Perrine et al. 2010). Sierra Nevada red fox are most active at dusk and at night (Perrine 2005), when many rodents are most active. During the winter (generally November to June), they are associated with mature closed-canopy forest and preferentially select forested areas for travel, possibly to avoid deep snow.

Den sites have been described as natural cavities in talus slopes or rockslides, and this fox also may use earthen dens, boulder piles, or even the space beneath vacant cabins (NatureServe 2019). Grinnell et al. 1937, state that SNRF use natural openings in rock piles at the base of cliffs and slopes as denning sites. There has been no habitat modeling conducted for Sierra Nevada red fox habitat due to a lack of local information and studies. There are confirmed Sierra Nevada red fox denning on the Deschutes NF. The project is not high elevation, plus human disturbance is high within the project area. Implementation would have **No impact** on the **Sierra Nevada red fox**.

Columbia Spotted Frog
Columbia spotted frogs are highly aquatic and associated with vegetated shorelines of ponds, springs, marshes, and slow-flowing streams and prefer water with a bottom layer of dead and decaying vegetation. They are found in a variety of vegetation types from grasslands to forests. Oregon, NatureServe (2019) lists them as S2, Imperiled and S3, Vulnerable. In Oregon, the Columbia spotted frog potentially occurs in Baker, Crook, Grant, Harney, Jefferson, Lake, Malheur, Umatilla, Union, Wallowa, and Wheeler counties. Monitoring surveys for the Oregon spotted frog have not produced any incidental observations of Columbia spotted frog. The project area is not within the Columbia spotted frog's known range and would have **"no impact"** to the **Columbia spotted frog**.

Dalles Mountain Snail
This species is generally associated with springs and seeps (but not in the wettest areas), occurring in rather open and dry situations which are moderately xeric, in large scale basalt (sometimes metasedementary) taluses on steep, cool aspects which usually are north-facing (Duncan 2008). The vegetation surrounding these habitats tends to be sage scrub as well as talus scrub, including *Artemesia, Prunus, Celtus, Balsamorrhiza,* grasses, *Seligeria* and bryophytes. Sage scrub or talus scrub springs and seeps do not occur within the project area. Implementation would have **No impact** on the **Dalles mountain snail.**

Silver-bordered fritillary
This butterfly ranges from Central Washington south along the Rocky Mountains to northern New Mexico and east to Illinois, Virginia and Maryland. They inhabit wet meadows, bogs, and marshes as well as forest openings in mountainous areas, and spring-fed meadows in dry prairies (NatureServe 2019). Two primary colonies exist in Oregon: one at Big Summit Prairie on the Ochoco National Forest and one in the Strawberry Mountains in the Malheur National Forest (Miller and Hammond 2007). Threats to this species include livestock overgrazing, wetland loss, and woody vegetation encroachment of willows and hawthorns from fire suppression (Miller and Hammond 2007). Adults lay eggs singly near host plants of the violet family including *Viola glabella* and *V. nephrophylla*. Caterpillars that develop from the eggs feed on these host plants and overwinter by hibernating, emerging as adults in the spring. Favored nectar sources for adults are composite flowers including goldenrod and black-eyed susans. Adults fly May to July with a second generation flying from August into September. There are no wet meadows, bogs, or marshes within the project area that provide habitat. Implementation would have **No impact** on the **silver-bordered fritillary**.

Management Indicator Species

American peregrine falcon
In Oregon, the peregrine falcon nests on cliffs ranging in height from a 75-foot escarpment at a reclaimed quarry to monolithic 1,500-foot high cliffs, as well as structural features of bridges (Joel E. Pagel *in* Marshall et al. 2003). There are no high escarpments, cliffs, or tall bridges in the project area. Implementation would have **No impact** on the **peregrine falcon**.

Cooper's and sharp-shinned hawk
The Cooper's and sharp-shinned hawks are considered MIS species in the Deschutes LRMP. They often use dense cover in which to hunt and nest. Several studies have compared nesting habitat use between coexisting accipiters in North America. Where these species coexist, a relationship occurs in which tree height and DBH of nest trees increases in proportion to accipiter body size. For example, sharp-shinned hawk nest sites in Oregon were characterized as dense, 40 to 60-year-old even-aged conifer stands while Cooper's hawk nest sites were 50 to 80-year-old conifer stands with somewhat larger, more widely-spaced trees, and goshawk nest sites were dense, mature conifer stands with varying densities of mature,

overstory trees. However, high interspecific overlap occurs between the species in the use of nest site characteristics such as basal area, canopy cover, and tree density (USDA FS 2012f and 2012t).

For a detailed assessment on the Cooper's and sharp-shinned hawk for the Deschutes National Forest, see the Forest-wide Species Assessment (USDA FS 2012f and 2012t).

Dense even-aged young stands (40-80 years) do not occur within the project area. Implementation would have **No impact** on the **Cooper's hawk or sharp-shinned hawk**.

Golden eagle
Generally, golden eagles occur in grass-shrub, shrub-sapling, and young woodland growth stages of forested areas, or in forest with open lands nearby for hunting. Essentially it needs only a favorable nest site, usually a large tree or cliff, a dependable food supply, primarily medium to large mammals and birds, and broad expanses of open country for foraging. It especially favors hilly or mountain country, where take off and soaring are facilitated by updrafts; deeply cut canyons rising to open sparsely treed mountain slopes and crags represent ideal habitat (Johnsgard 1990). The project area does not provide any cliffs for potential nest sites, or broad expanses of open country for foraging. The project would have **no impact** on the viability of **golden eagles** on the Deschutes National Forest. .

Marten
For the detailed assessment on marten for the Deschutes National Forest, see the Forest-wide Species Assessment (USFS 2012). Martens are extremely susceptible to predation and are reluctant to venture into openings (Buskirk and Powell 1994). Martens seem to be sensitive to patch size, and usually avoid open habitats dominated by grasses, forbs, and saplings, especially in winter. These areas do not provide the structure necessary for a network of travel ways under the snow, nor do they offer access to this subnivean zone. A lack of over- story cover offers little protection from predators. These open habitats also have more severe microclimatic conditions than areas with forest canopy cover (Buskirk and Powell 1994). . Much of the project area is more open habitat with high recreational use. The marten is not expected to occur within the project area. The project would have **no impact** on the viability of **marten** on the Deschutes National Forest. .

APPENDIX B

BCR Bird Species and their Preferred Habitat

Table 1. BCR 9 Bird Species and their Preferred Habitat.

BCR 9 (Great Basin, U.S. portion only)	
Bird Species	**Preferred Habitat**
Yellow-billed Loon	Winters along the coast from AK to Baja CA. Transients can be found on inland bodies of water.
Greater Sage-Grouse (Columbia Basin DPS) (a) ESA candidate	Sagebrush obligate, found E. of the Cascades. They require large expanses of sagebrush with healthy native understories of forbs.
Eared Grebe (nb) non-breeding in this BCR	Found on shallow alkaline lakes and ponds where open water is intermixed with emergent vegetation.
Black Swift	Nests on ledges or shallow caves in steep rock faces and canyons, usually near or behind waterfalls and sea caves. Forages over forests and open areas in montane habitats.
Calliope Hummingbird	Predominantly a montane species found in open shrub sapling seral stages (8-15 years) at higher elevations and riparian areas.
Lewis's Woodpecker	Ponderosa Pine, Cottonwood riparian or Oak habitats with an open canopy, brushy understory, dead and down material, available perches and abundant insects.
Williamson's Sapsucker	E. Cascades, mid to high elevation, mature open and mixed coniferous - deciduous forests. Snags are a critical component.
White-headed Woodpecker	Mixed conifer forests (< 40 % canopy cover) dominated by old growth Ponderosa Pine and open habitats where standing snags and scattered tall trees remain.
Willow Flycatcher (c) non-listed subspecies or population of T or E species.	Associated with riparian shrub dominated habitats, especially brushy/willow thickets. In SE WA also found in xeric brushy uplands.
Loggerhead Shrike	Inhabits grasslands, pastures with fence rows, ag. fields, sagebrush with scattered juniper and open woodlands. Requires elevated perches throughout for hunting and nesting.
Pinyon Jay	In OR, Pinyon-juniper woodland, sagebrush, and scrub oak habitats.
Sage Thrasher	A sagebrush obligate dependent on large patches and expanses of sagebrush steppe and bitterbrush with shrub heights in the 30 -60 cm height. Prefers bare ground over grassy understories.
Virginia's Warbler	In OR likes high elevation steep-sloped, xeric, pinion- juniper and oak woodland habitats.
Green-tailed Towhee	In OR prefers vigorous shrub stands with high shrub species diversity interspersed with trees.
Brewer's Sparrow	A sagebrush obligate found in shrublands of contiguous big sagebrush, greasewood, rabbitbrush, and shadescale habitats.
Black-chinned Sparrow	Erratic presence in ceanothus and oak hillsides in Southwest OR.
Sage Sparrow	Found in se. and c. OR Associated with semi-open evenly spaced shrubs 1-2 m high in big sage up to 6,800 ft.
Tricolored Blackbird	OR colonies occur in hardstem bulrush, cattail, nettles, willows, and Himalayan blackberries.

BCR 9 (Great Basin, U.S. portion only)	
Bird Species	**Preferred Habitat**
Black Rosy-finch	Rare in OR found above timberline among bare rock outcroppings, cirques, cliffs, and hanging snowfields.
Bald Eagle (b) ESA delisted	Associated with large bodies of water, forested areas near the ocean, along rivers, and at estuaries, lakes and reservoirs.
Ferruginous Hawk	Occupy habitats with low tree densities and topographic relief in sagebrush plains of the high desert and bunchgrass prairies in the Blue Mountains.
Golden Eagle	Inhabits shrub-steppe, grassland, juniper and open ponderosa pine and mixed conifer/deciduous habitats preferring areas with open shrub component for foraging.
Peregrine Falcon (b) ESA delisted	Wide range of habitats, nests on cliff ledges, bridges, quarries.
Yellow Rail	Found in shallowly flooded sedge meadows at 4,100 – 5,000 ft. with a cover of senescent and live vegetation ~50%.
Snowy Plover (c) non-listed subspecies or population of T&E species	E. of OR Cascades a summer resident breeding on alkali flats and salt ponds. On the S. OR coast they nest on open sand areas along the upper beach and on un-vegetated spits at mouths of small estuaries.
Long-billed Curlew	Open grassland areas E of the Cascades. Found in small numbers in estuaries along the coast.
Marbled Godwit (nb) non-breeding in this BCR	Migrant along the coast prefer coastal mudflats, sandy beaches, wet margins of large reservoirs or brackish lakes and sewage ponds.
Yellow-billed Cuckoo (w. U.S. DPS)	No known breeding population in OR. Found in large expanses of riparian forest, particularly black cottonwood, Oregon ash and willow
Flammulated Owl	Associated with ponderosa pine forests and mixed conifer stands with a mean 67% canopy closure, open understory with dense patches of saplings or shrubs.

(a) ESA candidate, (b) ESA delisted, (c) non-listed subspecies or population of Tor E species, (d) MBTA protection uncertain or lacking, (nb) non-breeding in this BCR.

APPENDIX C

Monitoring Protocol

Monitoring of this biological evaluation (BE) or biological assessment (BA) is critical to its ongoing success. Monitoring provides the needed link between projects, project design criteria, and baseline habitat information and is the main feedback loop for changing and updating the PDC. The three designed pathways for monitoring the BE/BA are discussed below including PDC compliance, project monitoring for changes in baseline habitats, and random Level I review of projects.

Project Design Criteria Compliance/Checklist (to be filled out for each project): Each project will have a PDC Compliance/Checklist form filled out and attached to the project BE/BA (Tables 1 and 2). This form will track all applicable PDC and if the project complies with the PDC. Included on the bottom of the form are four questions to monitor and modify the BE/BA as a result of project implementation. The questions cover implementation and effectiveness of the PDC, recommendations for changes to the PDC, and if there is a need to modify a PDC to address any issues. The purpose of the form is to determine project compliance and applicability of the BE/BA. It must be filled out both before and after project implementation.

Project Monitoring of Baseline Changes: A Project Monitoring Form for each project that results in a change in baseline habitat conditions will be completed and attached to the project BE/BA. Activities that change the baseline habitat may include both adverse effects to habitats (e.g. reduction of spotted owl habitat) and beneficial effects (e.g., addition of wood debris within a stream for bull trout or steelhead.) The purpose of this form is to track yearly changes in baseline conditions as a result of implementation of the programmatic BA or document the result of a project that is outside of the programmatic BA. Baseline information will be updated by January 31st of each year.

Level I Review of Projects: Each year the Level I team will review randomly selected projects across the area covered by the BE/BA. Projects will be reviewed to determine BE/BA compliance, PDC effectiveness, and any need to change or drop a PDC. This yearly review will provide the opportunity for the Level I team to hear and discuss concerns with field units about any PDC or project area and overall, how the BE/BA is working.

Monitoring of the BE/BA will provide the needed feedback loop to determine effectiveness and needed changes to the BE/BA, along with keeping the baseline habitat information for the various species up to date.

Table 1. Wildlife Project PDC Compliance Checklist.

Project Design Criteria Compliance Checklist (attach to BE/BA)	**Applies to project (Yes/No)**	Project Complies **(Yes/No)**
Spotted Owl (all land allocations)		
A.1. Do not work disruptively w/in ¼ mile (1 mi. for blasting) of spotted owl activity center 3/1-9/30	N	
A.2. Do not work outside of restriction period unless emergency work is warranted	N	
A.3. Do not remove hazard trees unless DWD needs are met in project area as in LRMP or LSRA	Y	Y
A.4. Only remove hazard trees if they pose a liability to recreation residences, private landowners, campgrounds, or special use permittees	Y	Y
A.5. Survey projects with NRF to Regional Protocol or implement seasonal restriction	N	
A.6. Use smoke management forecasts in order to minimize smoke entering into suitable habitat	N	
A.7. Options for reducing hazards trees should be explored: topping, closing or moving sites, etc.	Y, potential topping	
Spotted Owl (CHU's, LSR's, and Core Areas)		
B.1. Do not remove, downgrade, or degrade constituent elements of critical habitat	Y	Y
B.2. Promote LSOG conditions where plant associations are capable of sustaining NRF	N	
B.3. DWD objectives are met by plant association as described in the desired LSR condition	N	
B.4. Stands not capable of becoming NRF should be managed to provide for dispersal habitat	N	
Spotted Owl (Matrix)		
C.1. Maintain 100 acres of NRF habitat (core area) around all known activity centers	N	
C.2. Maintain all late-successional patches in fifth field watersheds currently comprised of 15% or less late-successional forests	N	
C.3. Maintain dispersal habitat between 100-acre core areas and LSRs	Y	Y
C.4. Maintain all existing NRF habitats for connectivity	N	
C.5. Promote climatic climax LSOG habitat in plant associations capable of sustaining NRF habitat	N	
C.6. On lands not capable of becoming NRF promote that development of habitat for other LSOG dependent species	N	
C.7. Maintain 100 acres of NRF habitat (core areas) around all newly discovered activity centers	N	

Did we implement PDC, recommendations, or minimization measures per the BA?	No
Were the PDC and/or recommendations effective relative to the effect conclusions?	--------
What, if any, PDC, recommendations were particularly difficult to implement?	--------
Is there a need to modify or create a new PDC to address a new or existing issue or impact?	No

Table 2. Spotted Owl Baseline Project Monitoring Form for NLAA Program Activities.

Spotted Owl

Project-level effects as determined by: Shelley Borchert **Date:** July 23, 2019

Biological Evaluation: X Biological Assessment_____ Programmatic Version: 2014
Forest: Deschutes **District:** Sisters R.D.

Project Name: Greater Suttle Lake Vegetation Management Project

Program Type: Hazard/Danger Tree Removal

Consultation: Informal

Total Project Acres: 249

Geographic Area: Lower Lake Creek Subwatershed

Land Allocation	Total Acres Project Area	Planned Habitat Effects	
		NRF Degrade (Remains NRF)	Degrade Dispersal
NW Forest Plan			
AWD	209		47
LSR name:	28		
LSR name:			
CR			
Matrix	12		
Critical Habitat			
CHU#: ECN 8	(245)		
CHU#:			
CHU#:			
TOTAL	249		47

Total as of (date): Total as of (date):

Land Allocation	Actual Habitat Effects	
	NRF Degrade (Remains NRF)	Dispersal Degrade
NW Forest Plan		
AWD		
LSR name:		
LSR name:		
CR		
Matrix		
Critical Habitat		
CHU#:		
CHU#:		
CHU#:		
TOTAL		

Describe the purpose of the project.	The purpose of the project is to provide public health and safety, protect and maintain infrastructure, ensure safe public occupancy of developed recreation areas and reduce impacts of tree diseases to forests in the greater Suttle lake area. There is a ***need*** to reduce short-term impacts from the presence of hazard trees in developed recreation areas and danger trees along Forest roads and conduct silvicultural treatments (thinning and planting) to promote forest health in the project area over the long-term.
Describe the purpose of treating NRF habitat?	No NRF would be treated.
Describe the purpose of treating dispersal?	The purpose of removing dispersal is to remove hazard/danger trees that pose a threat to public safety.
Did the project achieve your objective?	

Project Completion Date:_____Signature:_____